LED Cubic Ball DIY Kit

NTOE:

This DIY installation is more difficult to be installed, please be patient until the installation is complete!!!

It is strongly recommended to browse the installation manual before starting installation!!!

1. Introduction

New design concept, cool effect,Different light cube with a wonderful experience!

2. Parameter

NO.	Parameter	Value
1	Name	DIY LED Cubic Ball Kit
2	Size	About 90*90*130mm
3	Color	RGB
4	Shell	Acrylic Shell
5	Weight	About 130g
6	Nature	DIY Kit
7	Power Supply	Mini USB DC4.5-5.5V 100mA
8	Power Type	Charger/Power Adapter/USB
9	Sound source	External Audio Input
10	Control model	Infrared Remote Control or Button Control
11	Basic function	>30 animation modes; >6 spectrum animation modes

3. Function

1>. 8*16 LED display

2>. Various modes can be switched as your wish:

1). Offline animation models (up to a dozen):Free display or Key control(just parts models can be control by button or remote control).

2). Music spectrum mode:The spectral mode needs to be connected with an input audio signal, so that the optical cube can beat the music spectrum rhythm.

3>. Switch mode by remote control or button at any time mode.

4. Feature

1>. COOL FUN: The shape of innovation;

2>. MAGIC: At least 20 colorful animation, 4 spectrum animation;

3>. ABILITY: A full set of spare parts to develop practical ability;

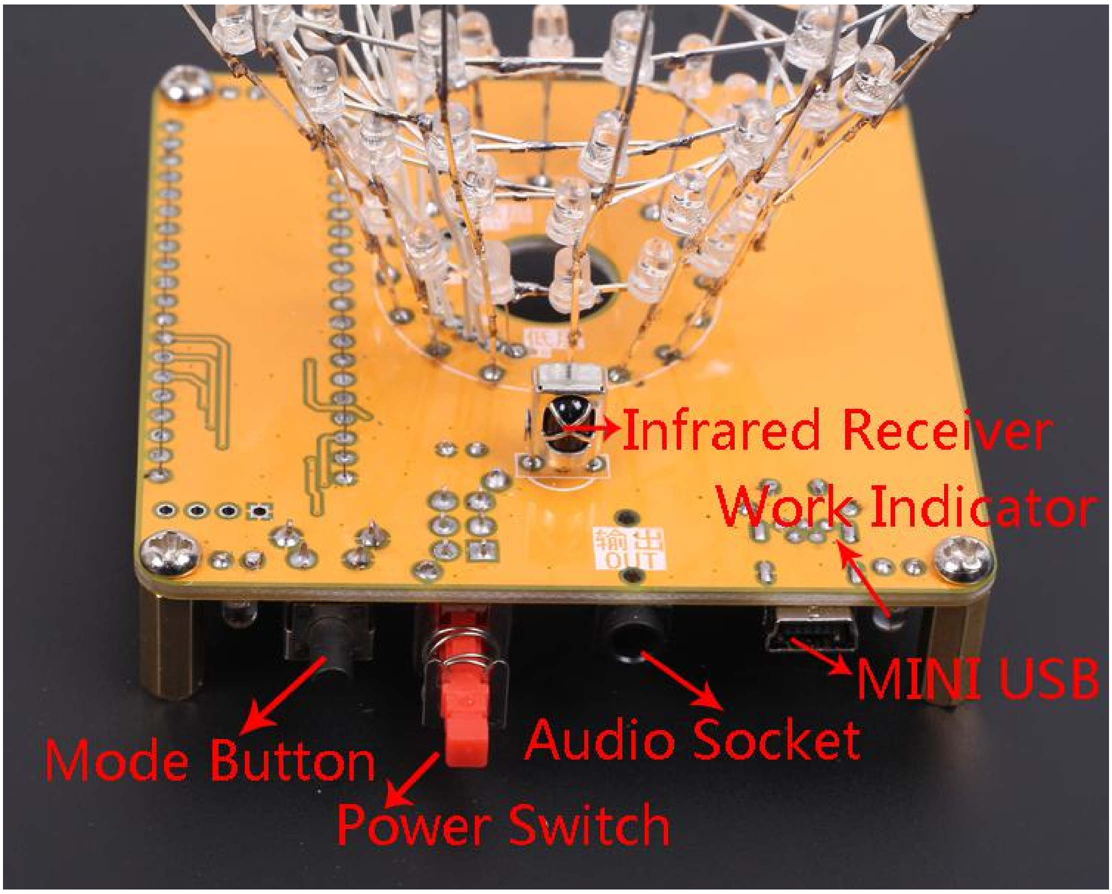
4>. RECREATION: The elaborate and exquisite appearance can be considered as a gift.

5>. CRAFT COLLECTION: All handmade works of art that can be collected.

5. Component listing

NO.	Component Name	PCB Marker	Parameter	QTY
1	Metal Film Resistor	R1	100K	1
2	MINI USB Female Socket	J1	5P	1
3	IC Socket	U1	DIP-40	1
4	STM15F2K60S2	U1	DIP-40	1
5	Audio Socket	P1	3.5mm SMD	1
6	Monolithic Capacitor	C2	1uf 105	1
7	Power Switch	S1	Red Self-locking	1
8	Mode Button	S2	Black	1
9	Electrolytic Capacitor	C1	220uf 16V	1
10	Infrared Receiver	IR1	VS1838V	1
11	RGB LED	D1-D4	3mm	132
12	Copper Pillar		M3*12mm	4
13	Screw		M3*5mm	4
14	USB Audio Cable		About 45mm	1
15	White Cable		About 1M	1
16	Remote Control		85*40*6mm	1
17	Acrylic Welding Template		82*82mm	1
18	PCB		70*70mm	1

6. Basic instruction



1>. Mode Button:Change the LED display animation;

2>. Power Switch: Control power;

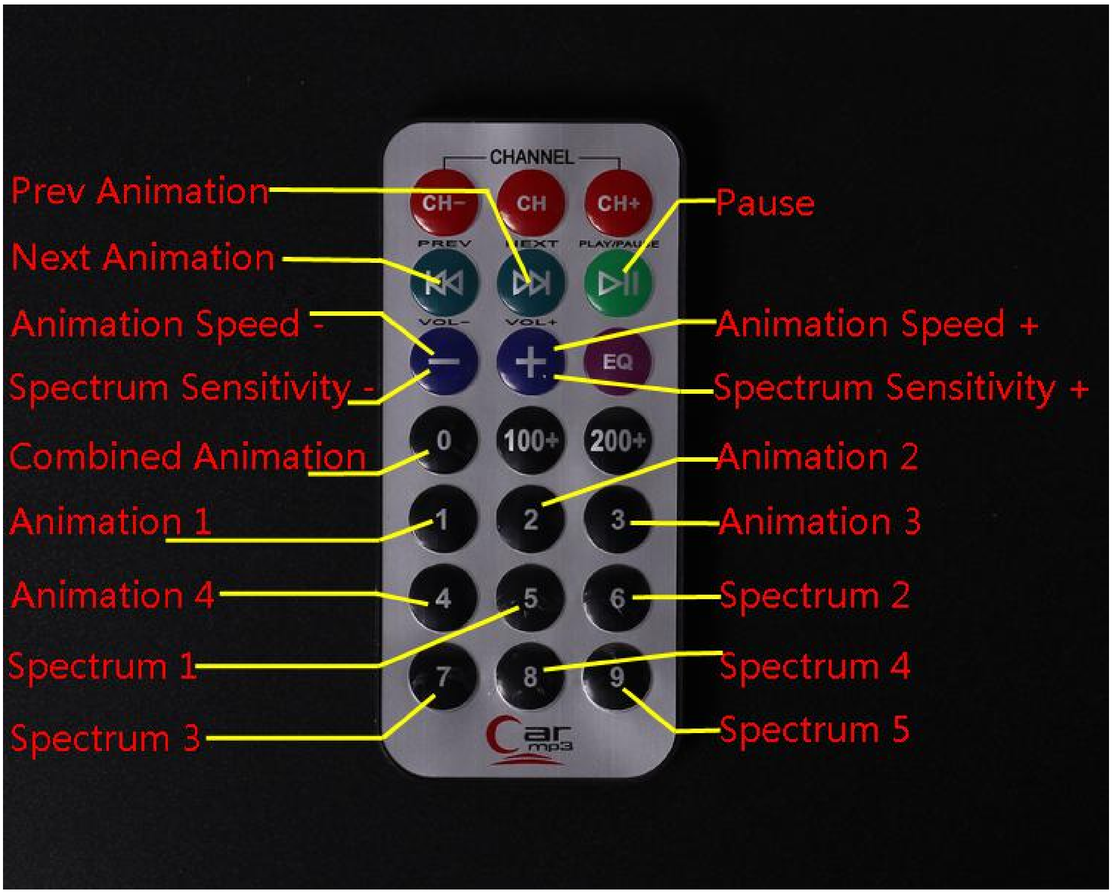
3>. MINI USB:Power and Audio input;

4>. Audio Socket:Audio output;

5>. Work Indicator:Flash automatically;

6>. Infrared Receiver:Receive remote control signal and Change the LED display animation.

7. Remote control button description



8. Application:

1>. Learn Electronics.

2>. Learn MCU.

3>. Practice soldering.

4>. DIY production.

5>. Graduation design.

6>. Curriculum design.

7>. Electronic competition.

8>. Gift giving.

9>. Arts and crafts collection.

10>. Souvenir collection.

11>. Family decoration.

9. Installation Steps(Please be patient install! !)

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Tips:

1>. Install small components at first;

2>. Install complex components preferentially;

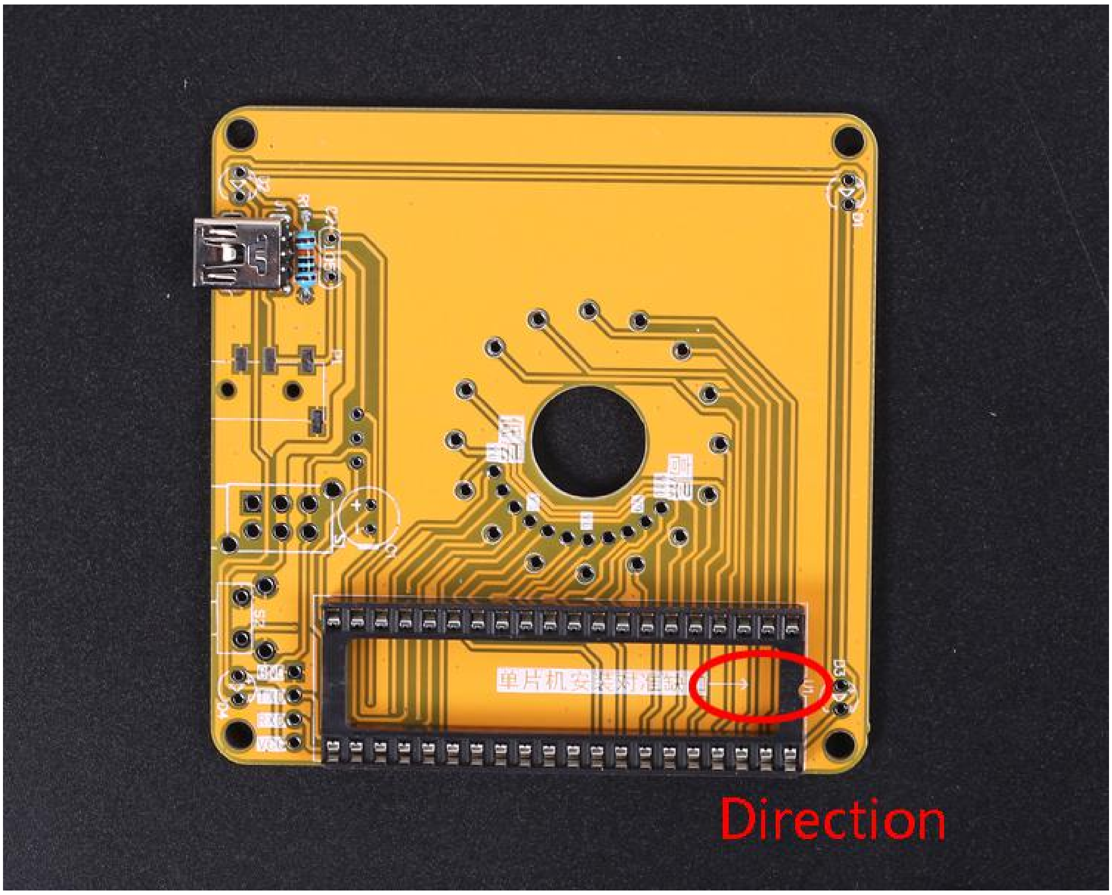
3>. Pay attention to the installation direction of components.

4>. Make sure the soldering iron does not touch the components for a long time.Otherwise it is easy to damage the components.

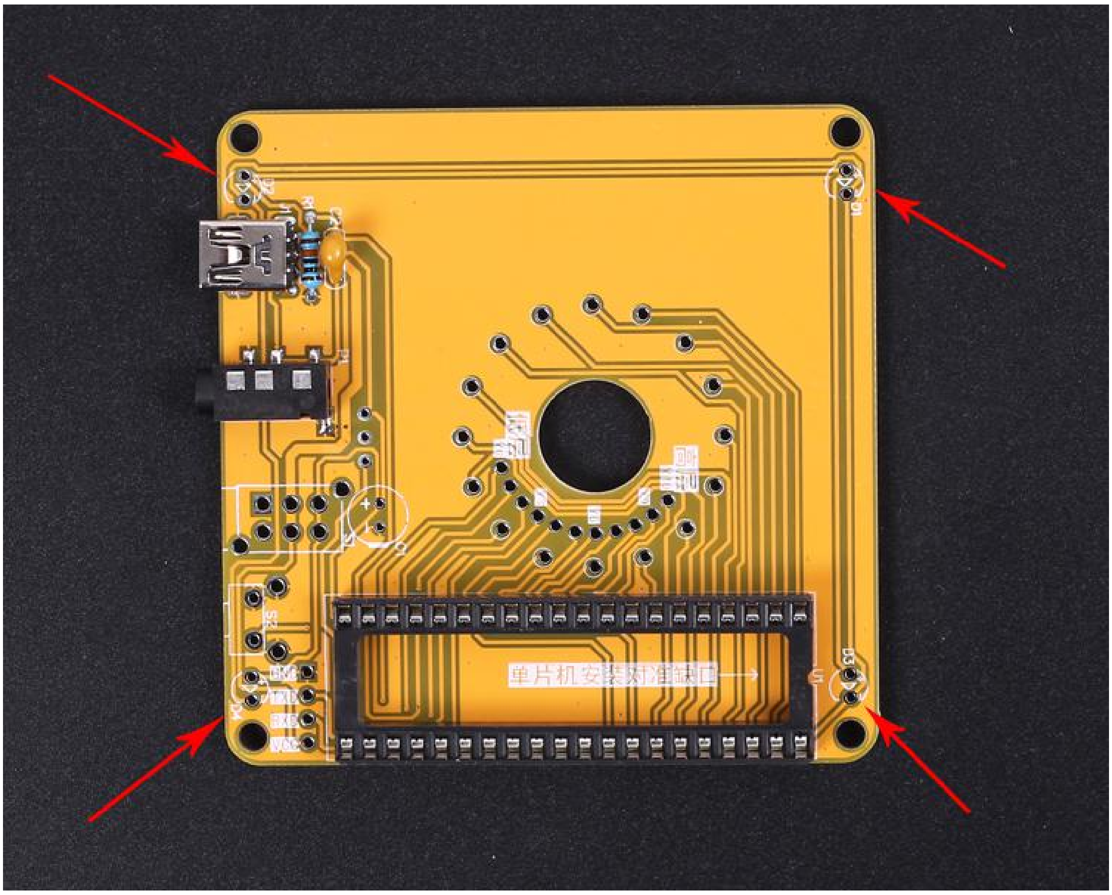
There are a variety of installation methods that show different effects.The following describes two kinds of installation, user can choose according to your own preferences.

Installation method 1:

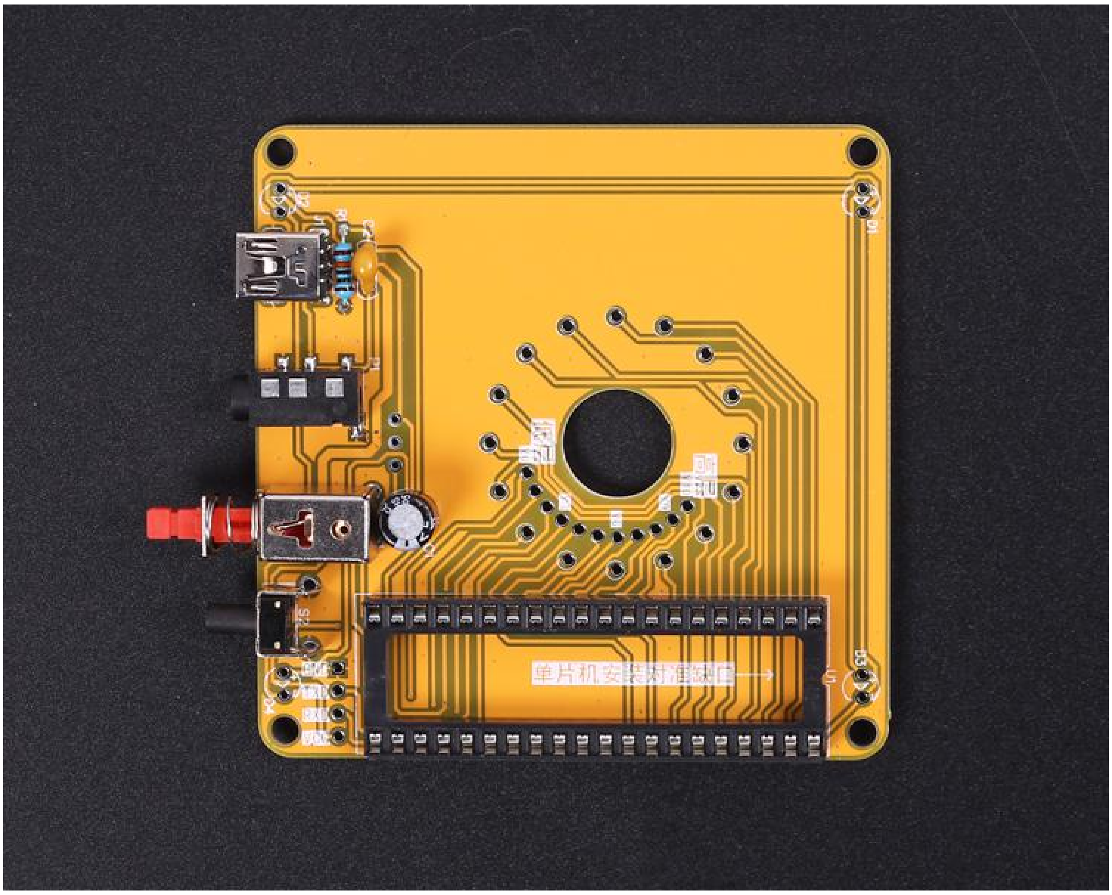
Step 1: Install 1pcs 100K resistor,mini USB female socket and DIP-40 IC Socket.Pay attention to the installation direction for IC Socket.



Step 2: Install 1pcs Monolithic Capacitor and Audio Socket.(User can install 4pcs 3mm LED work indicator on D1-D4 in this step and Note the direction.)



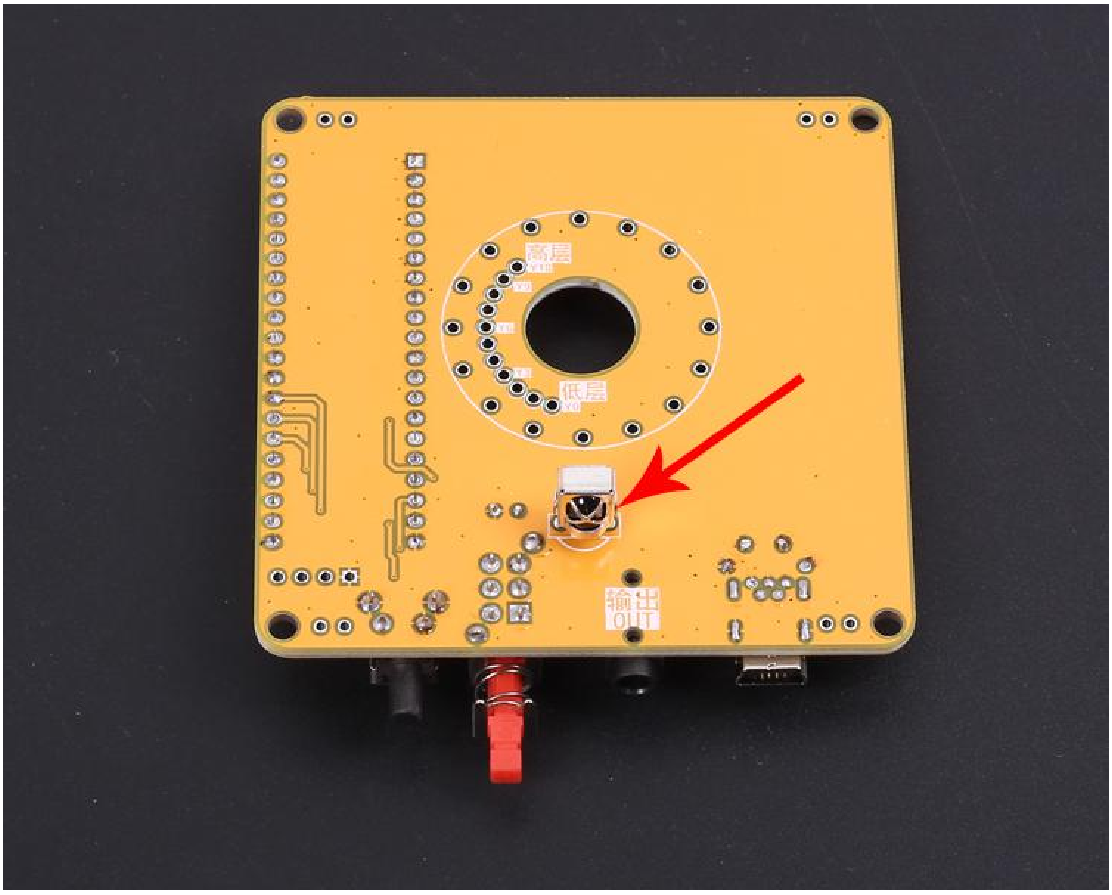
Step 3: Install 2pcs switch and 1pcs Electrolytic Capacitor(Pay attention to the installation direction).



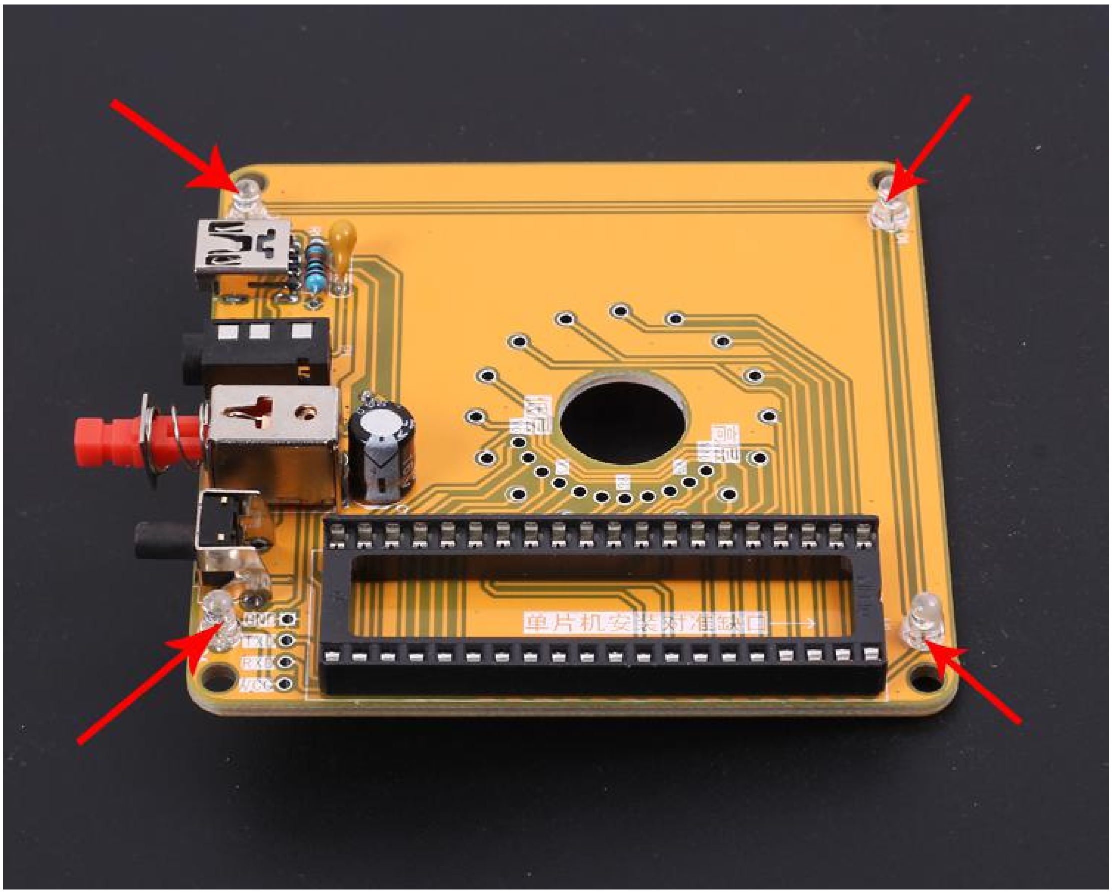
Step 4: Install 1pcs infrared receiver.

1>. Installed on the other side of the PCB;

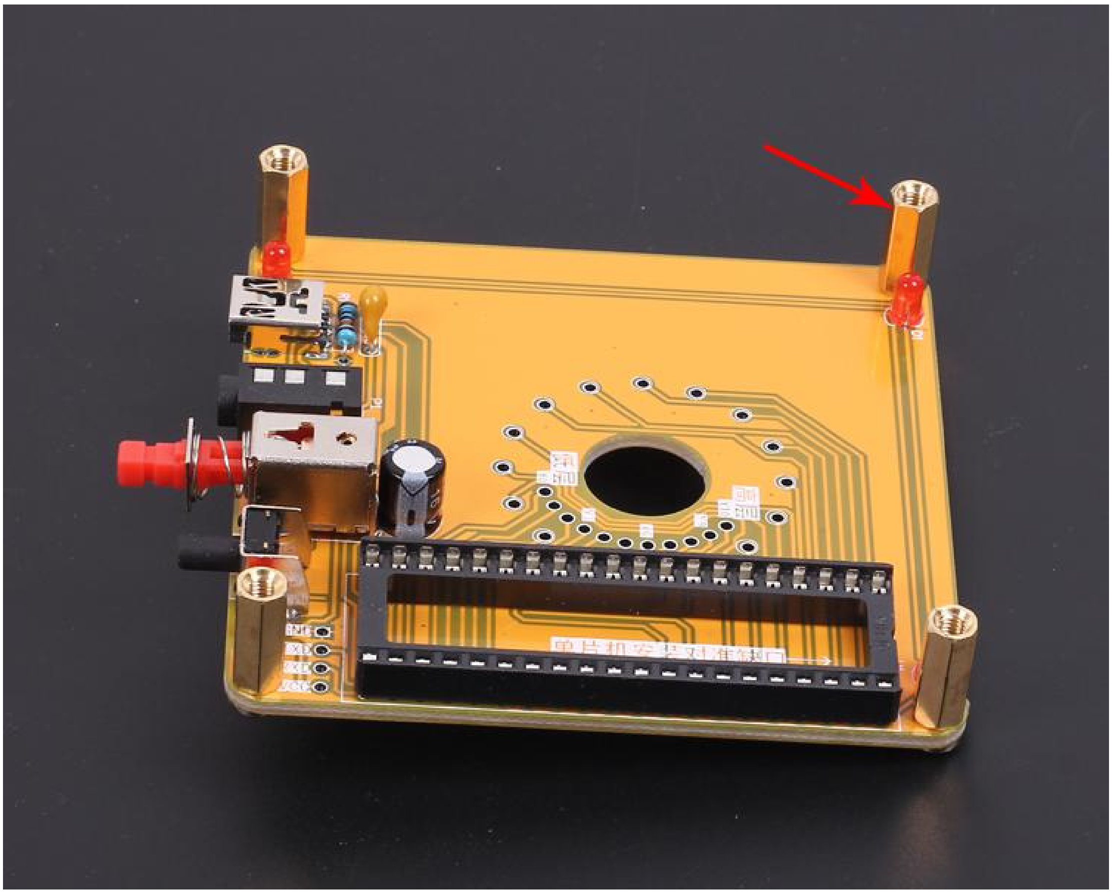
2>. The receiver is facing the side where the keys are located.



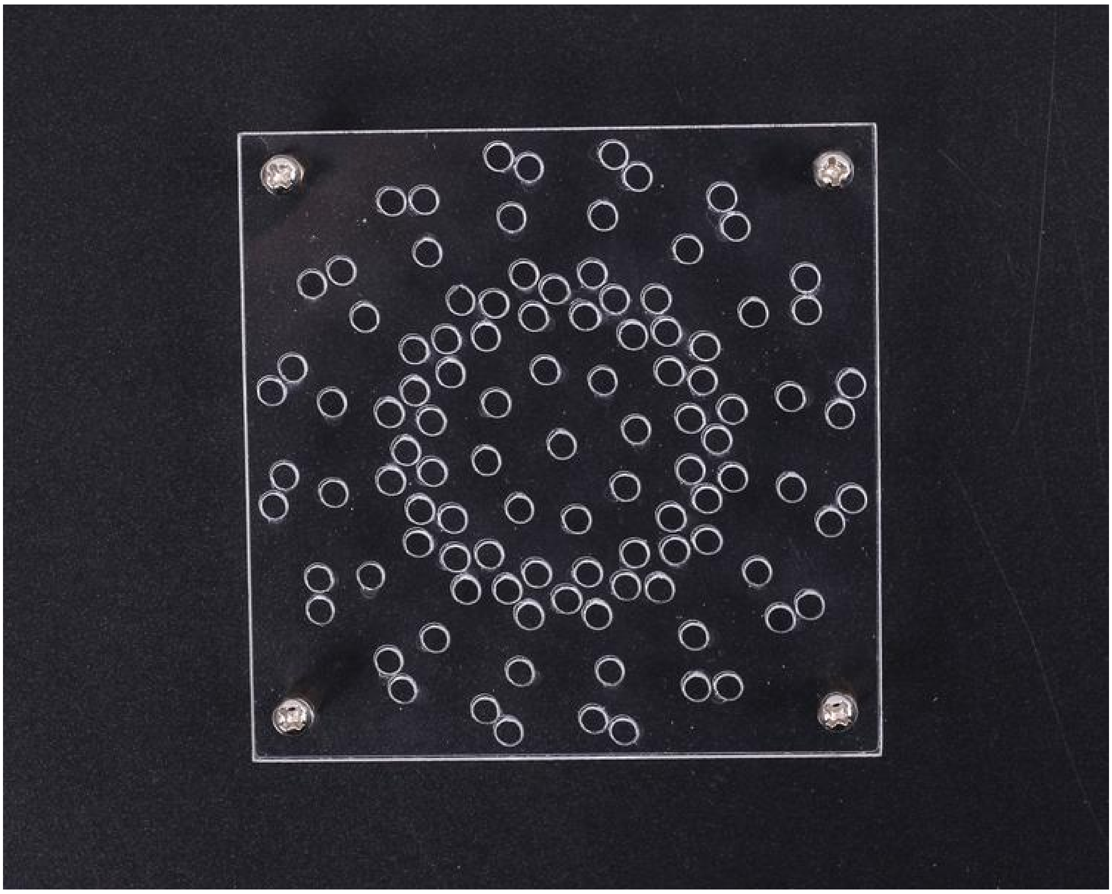
Step 5: Install 4pcs LED work indicator on D1-D4 and Pay attention to the installation direction.(If your have install LED on step 2,Please ignore Step 5 in here)



Step 6: Install Copper Pillar and Screw.

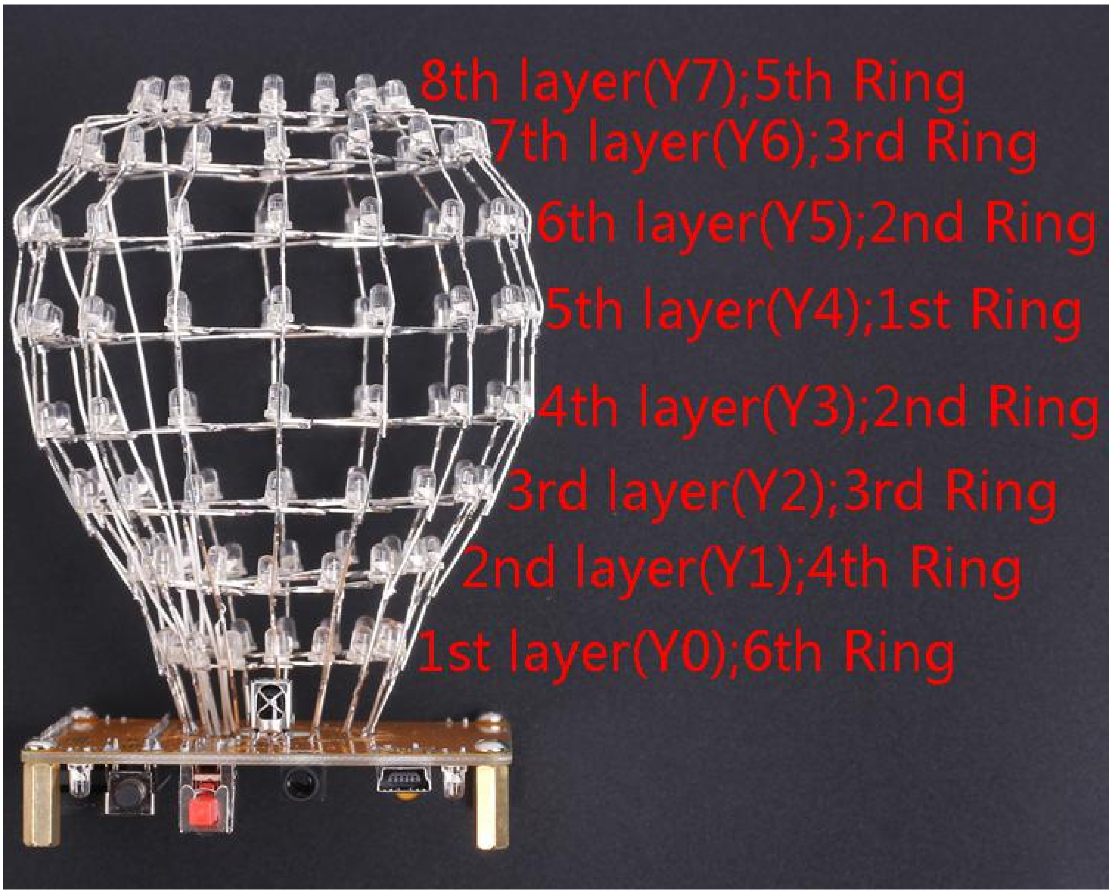


Step 7: Install Copper Pillar and Screw on Acrylic Welding Template.

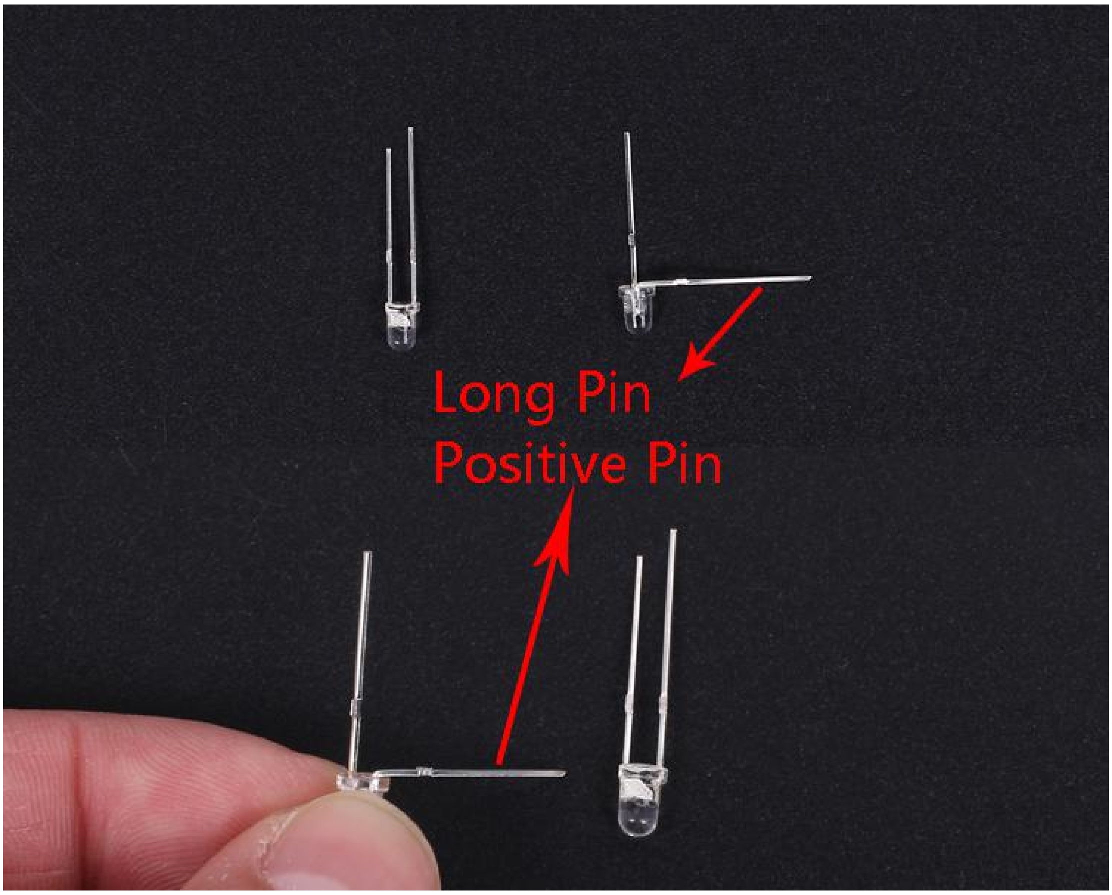


Step 8: Acrylic Welding Template Ring,LED Layer and Anode solder pad corresponding relationship.

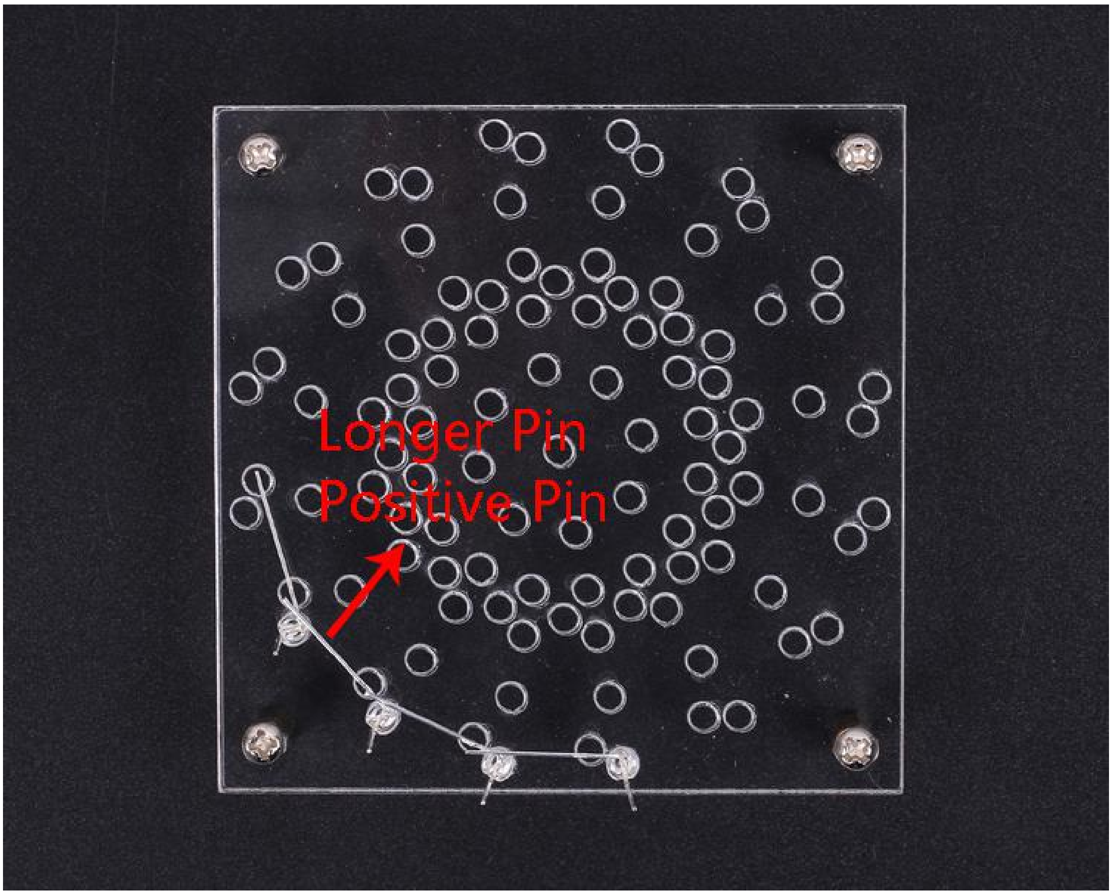

1st Ring
2nd Ring
3rd Ring
4th Ring
5th Ring
6th Ring
7th Ring


8th layer(Y7);5th Ring
7th layer(Y6);3rd Ring
6th layer(Y5);2nd Ring
5th layer(Y4);1st Ring
4th layer(Y3);2nd Ring
3rd layer(Y2);3rd Ring
2nd layer(Y1);4th Ring
1st layer(Y0);6th Ring

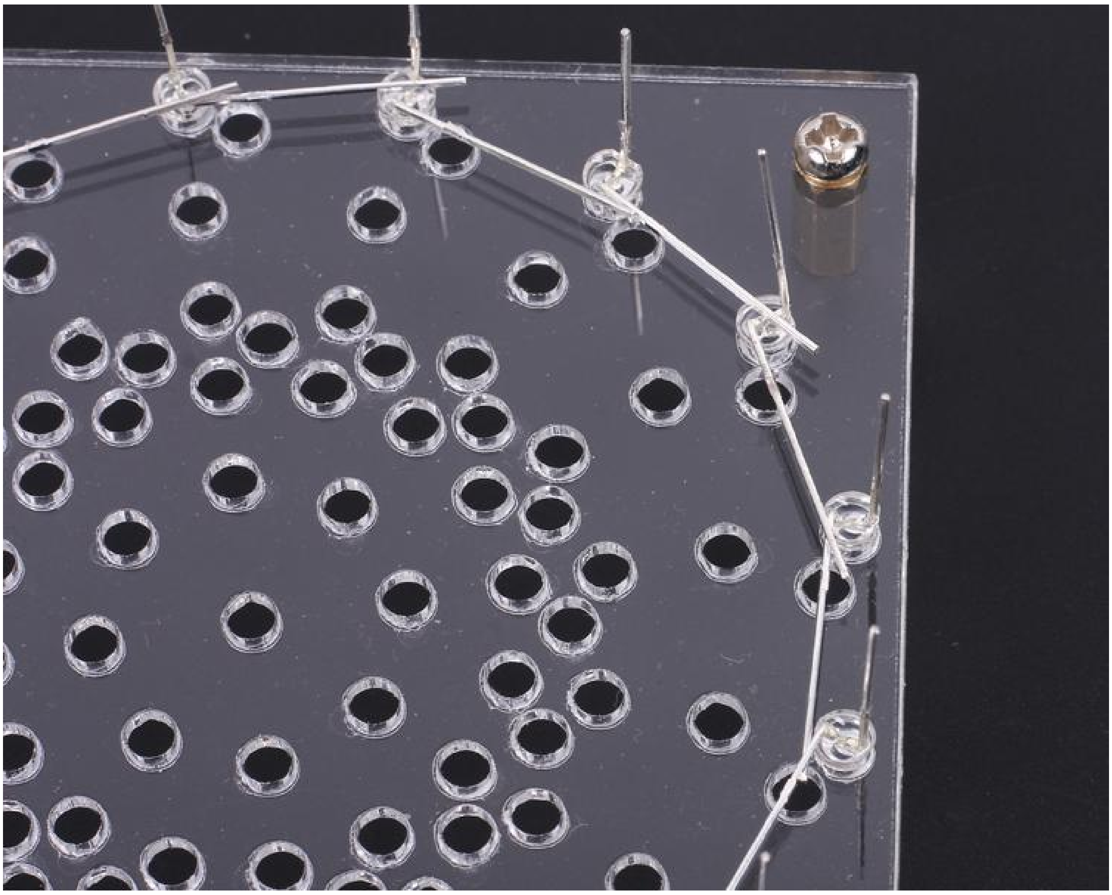
Step 9: Process LED.Curved LED's Long pin(Positive pole) and form a right angle.Please be careful not to damage the LED.

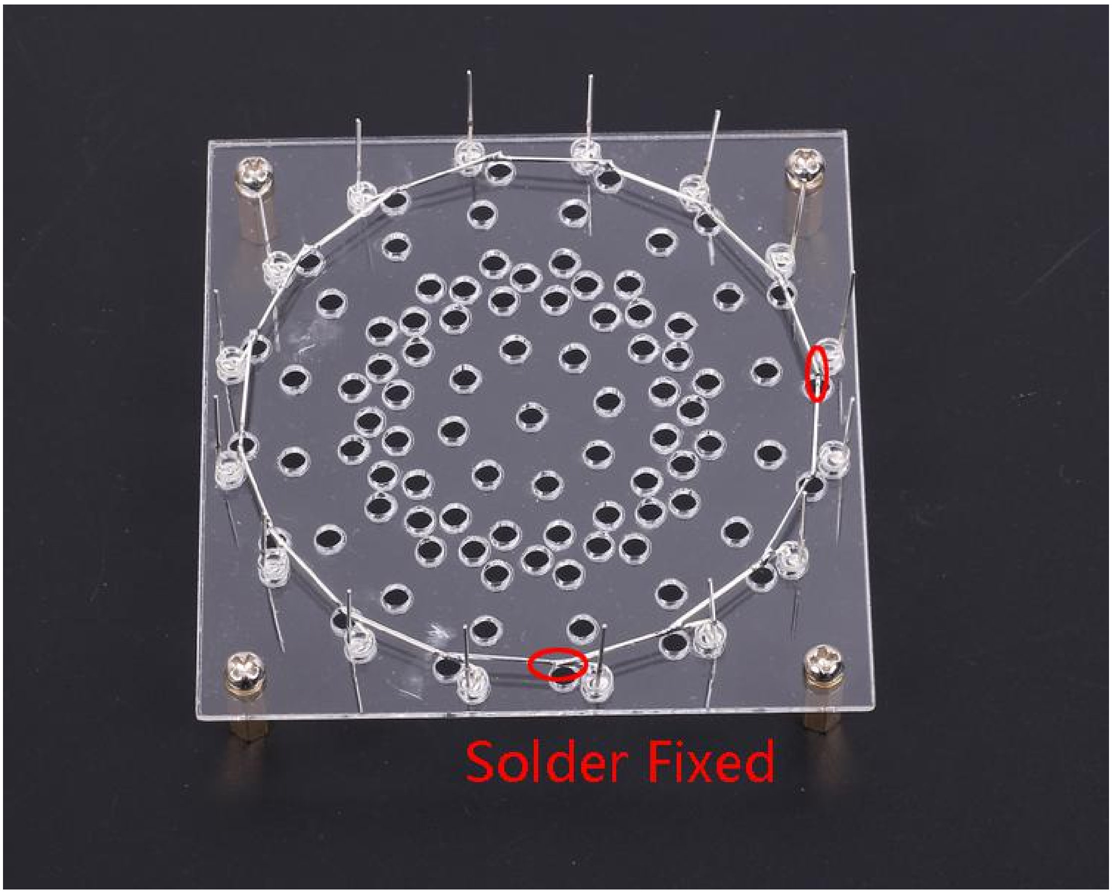


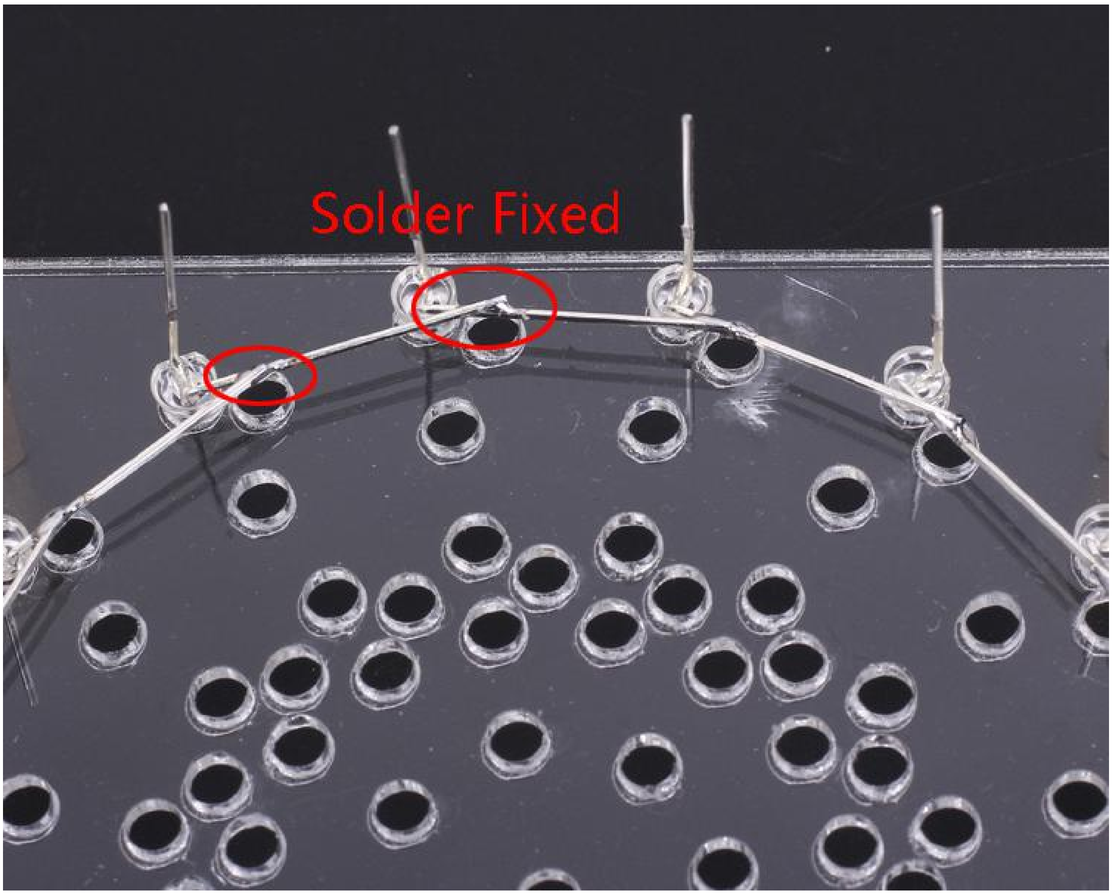
Step 10: Install the 1st Ring LED with Acrylic welding template.Short pin(Negative pole) outward,Longer pin(Positive pole) interconnection.

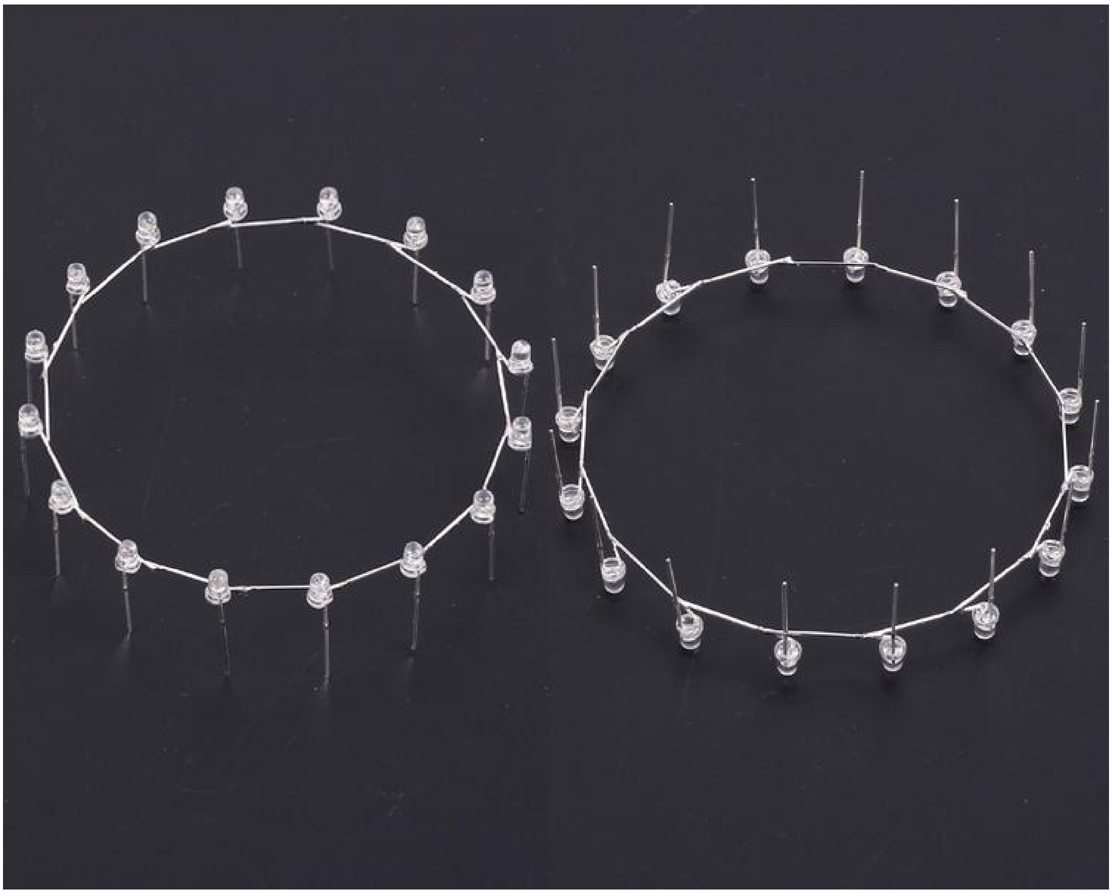

Longer Pin
Positive Pin






Solder Fixed


Solder Fixed



Step 11: Install the 2nd Ring to the 6th Ring total 8pcs LED rings as Step 10.

NOTE: It is need to install 2pcs the 2nd Ring and 2pcs 2pcs 3rd Ring.Others for 1pcs.



Step 12: Install the 6th Ring as the 1st Layer LED.Bend the pins slightly.First fix a pin, and then fixed the pin on opposite position.Use pliers to bend the tip of the pin if not convenient to install.

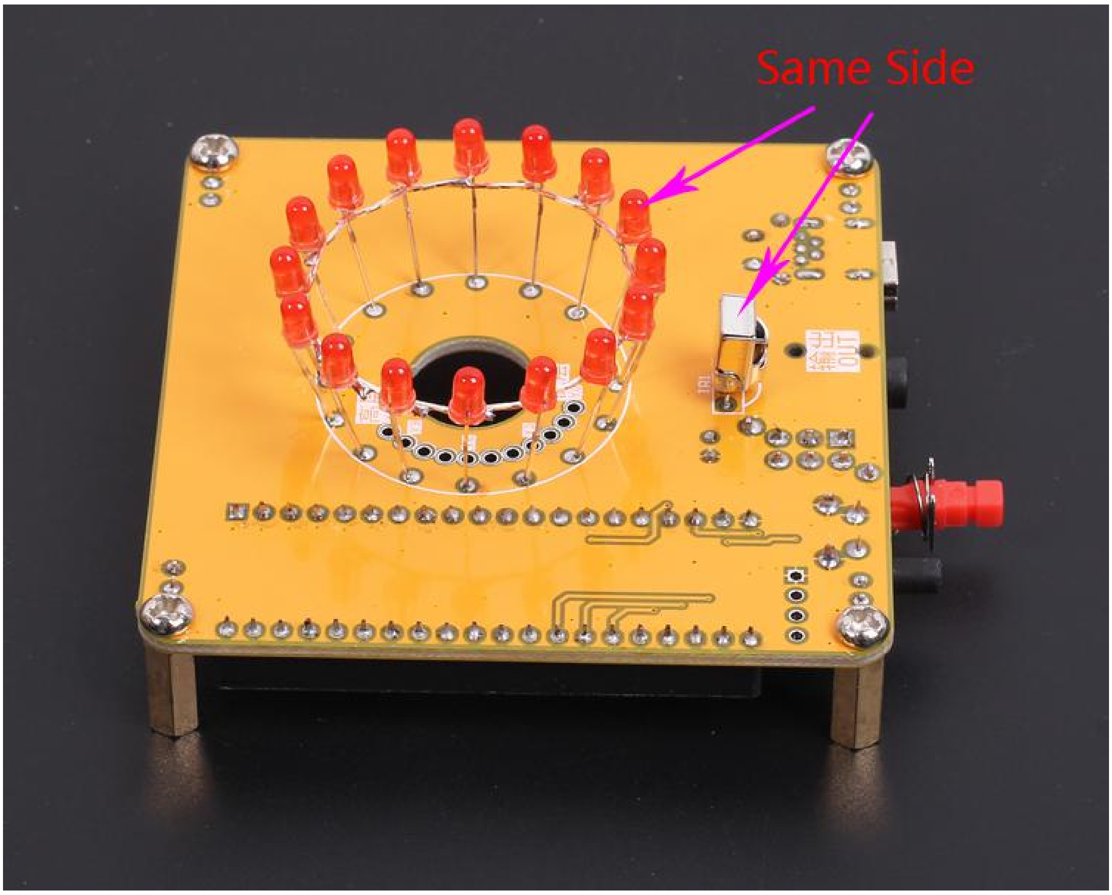
At same time user can connect the 1st layer to Y0 by white cable !(This manual does not use this method,But recommend this method)

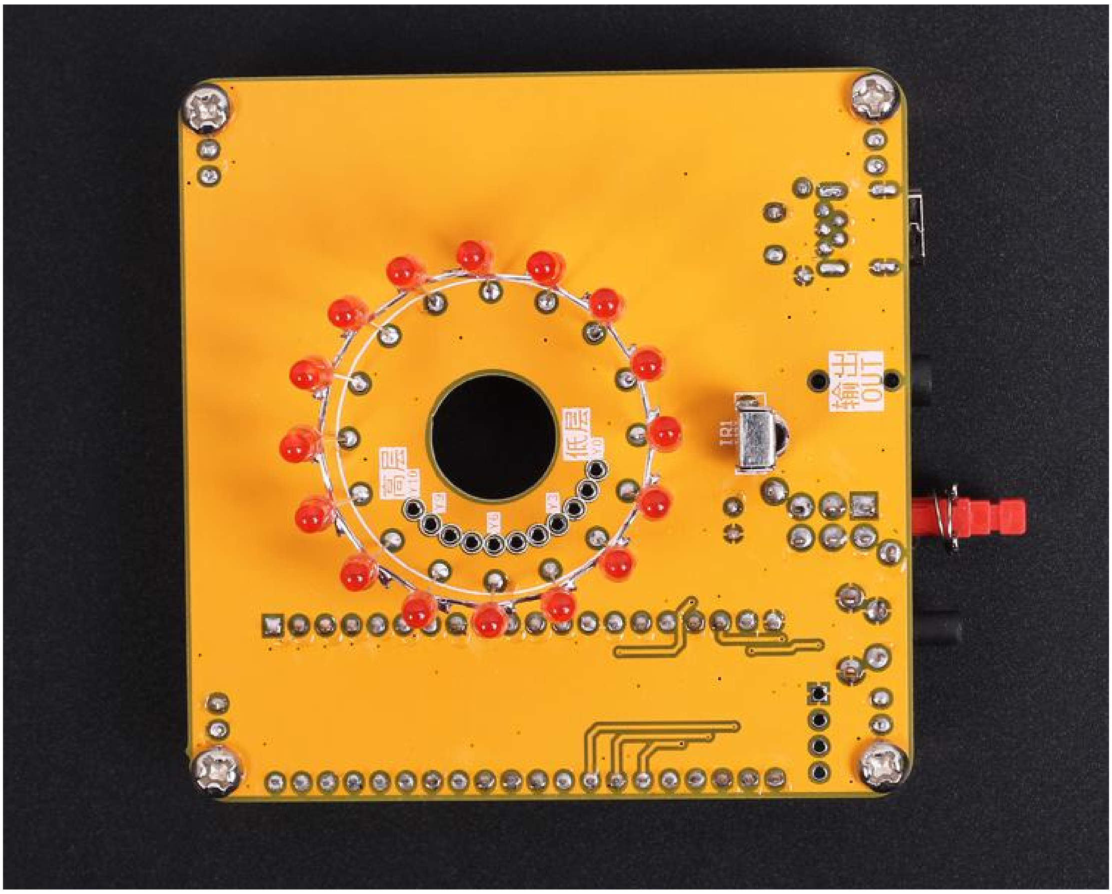
Please ignore the LED color differences, only demonstrate the

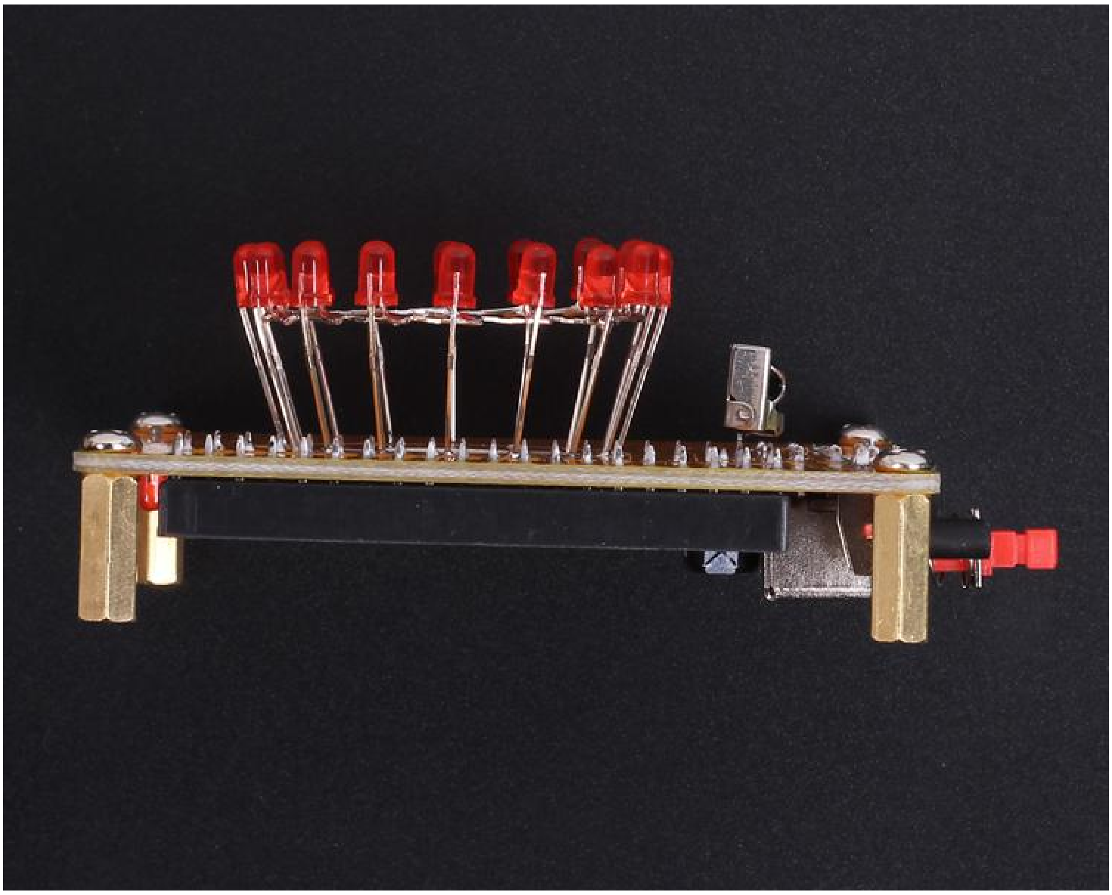
installation steps!

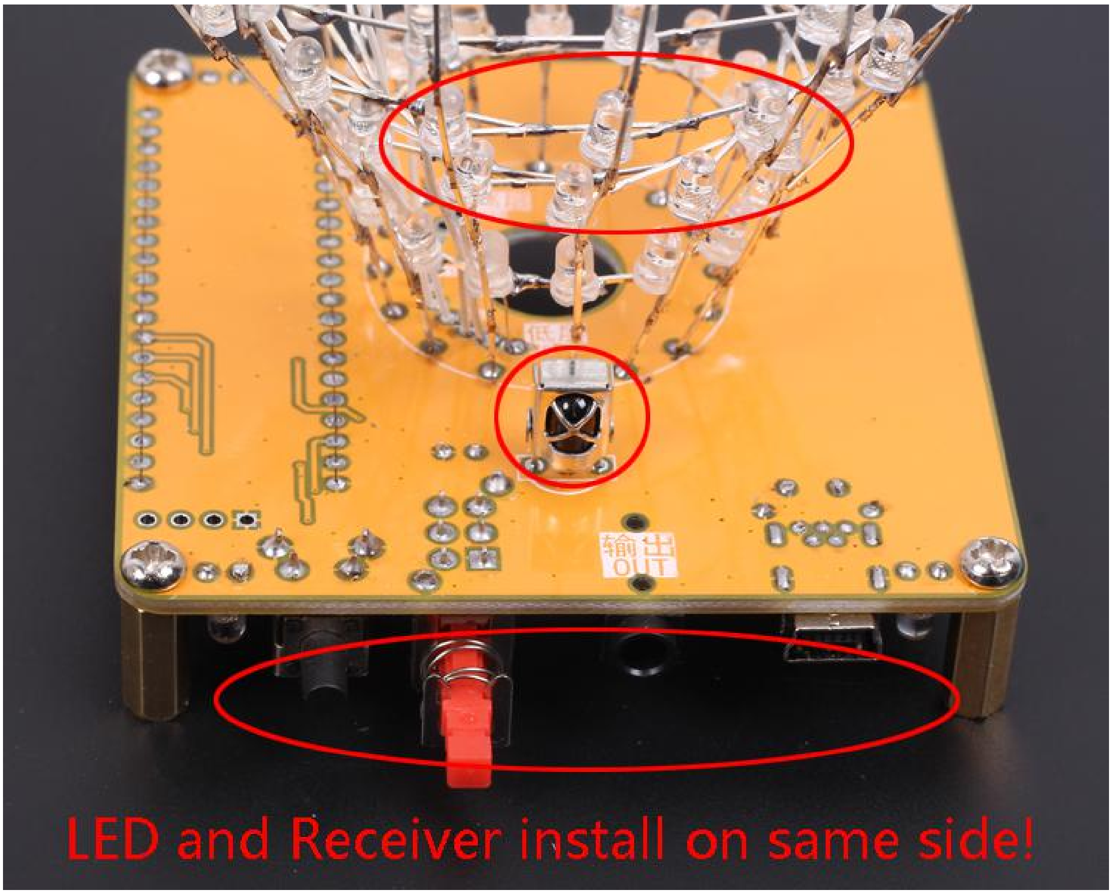
NOTE:LED is been install on PCB side which just have a infrared receiver.Please do not install error!!



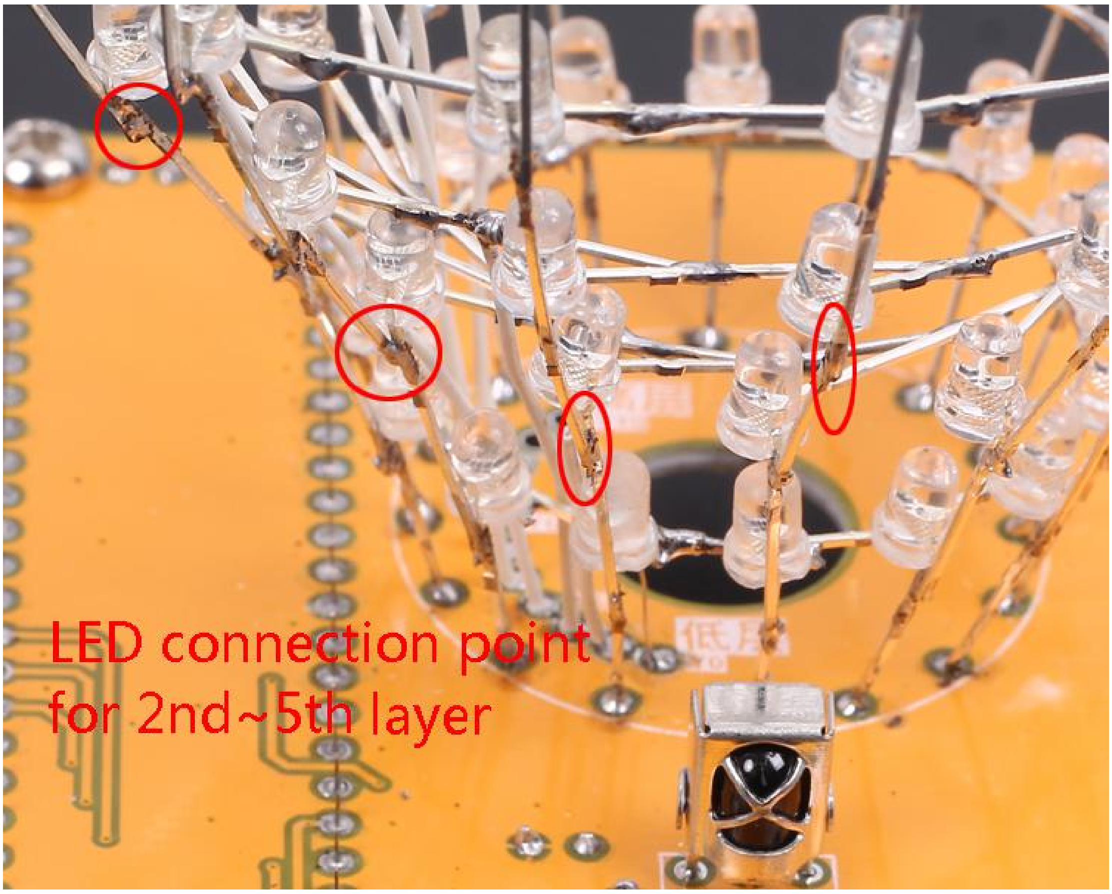

Same Side
IR1
输出
OUT

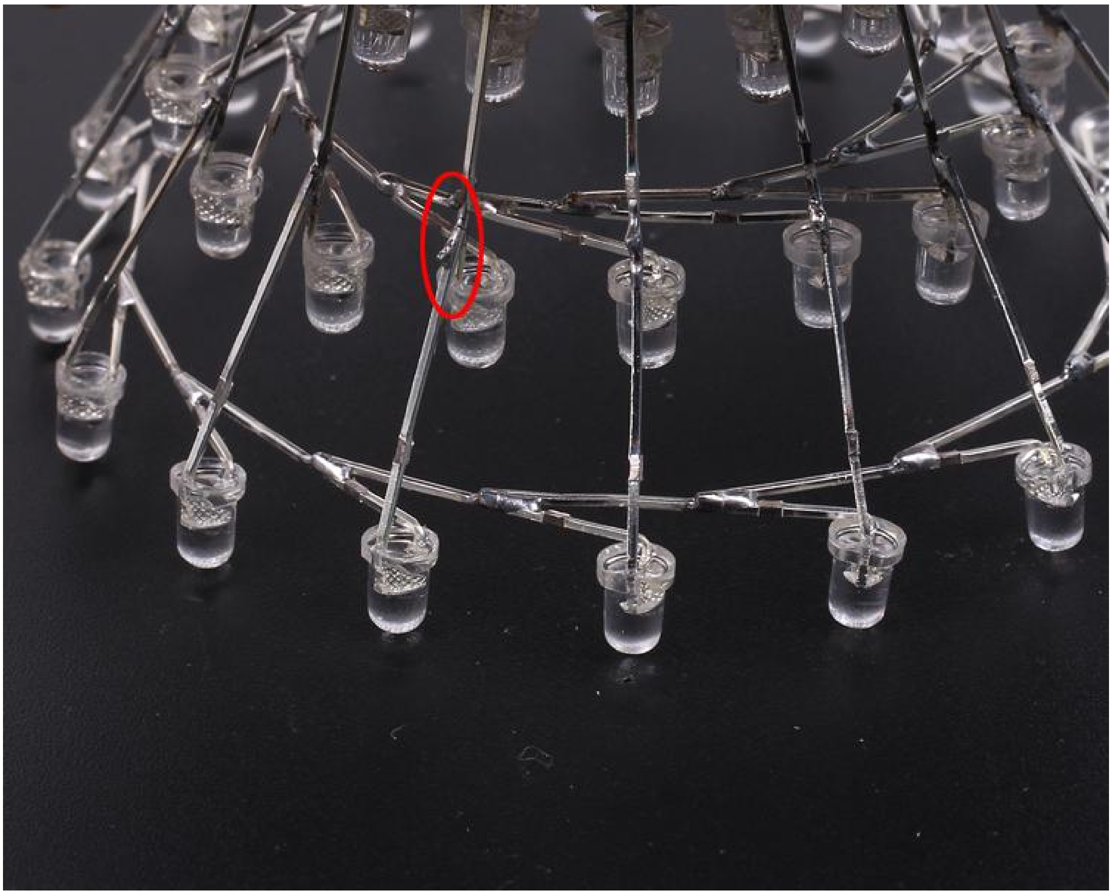

IR1
输出
OUT
高层
低层

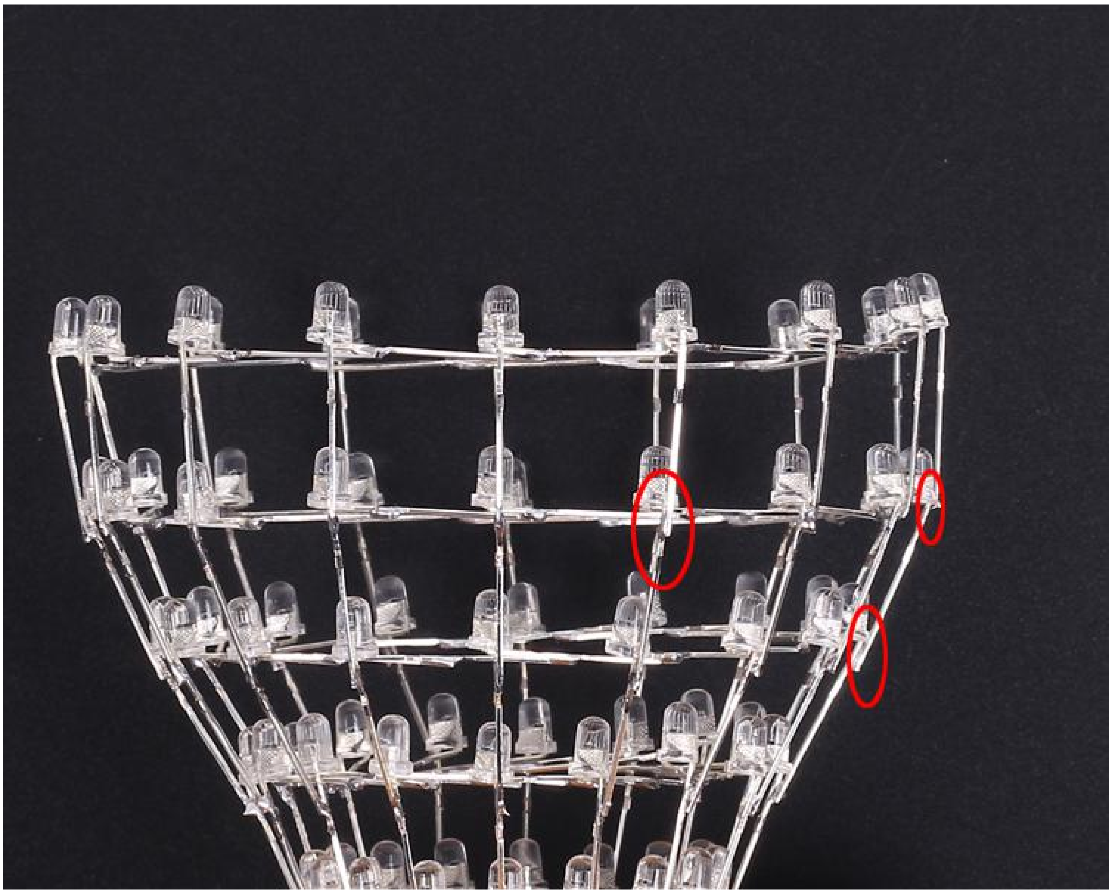


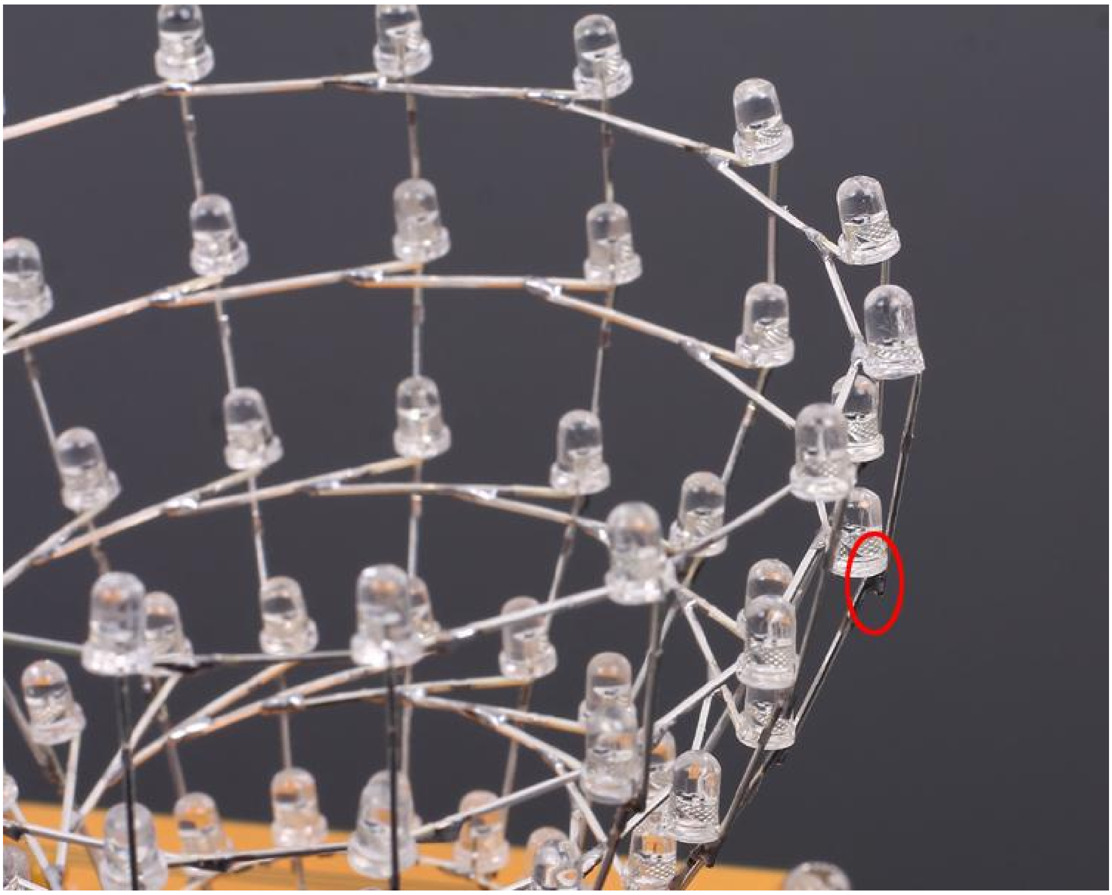

输出
OUT
LED and Receiver install on same side!

Step 13: Install 2nd~5th layer as Step 13.

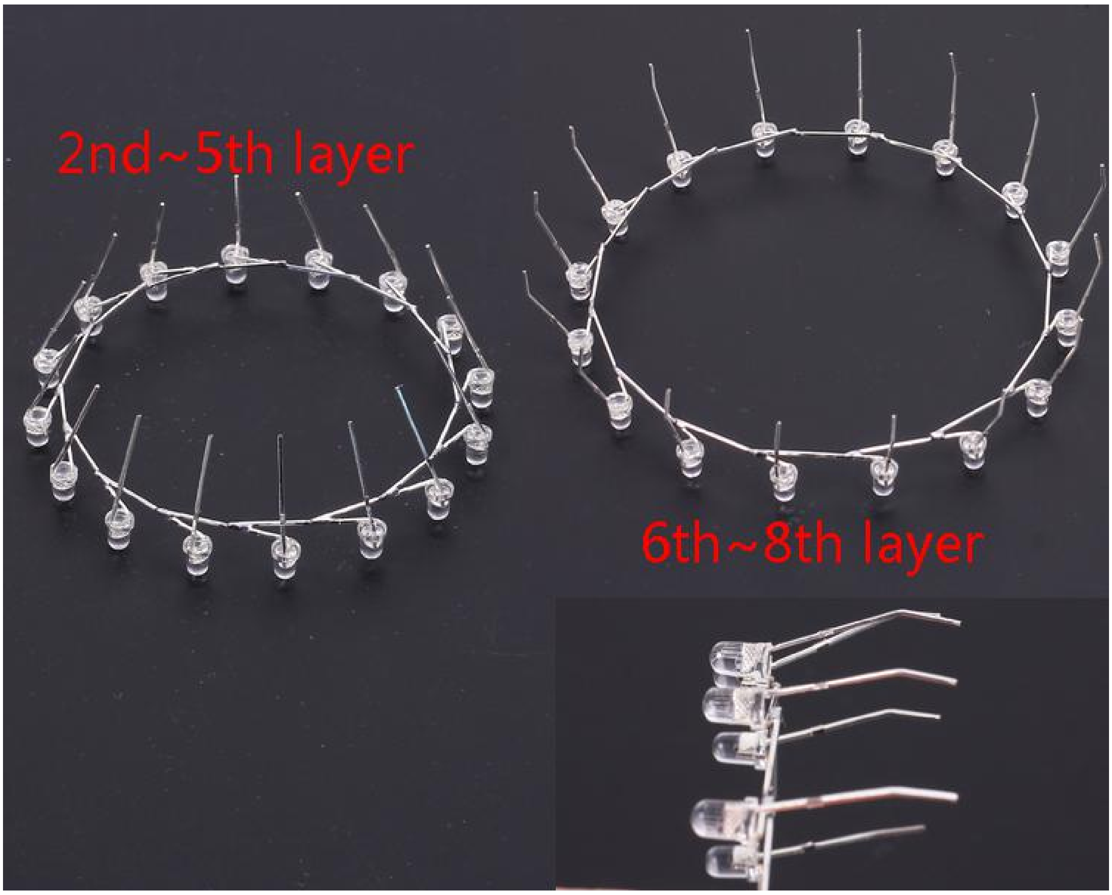


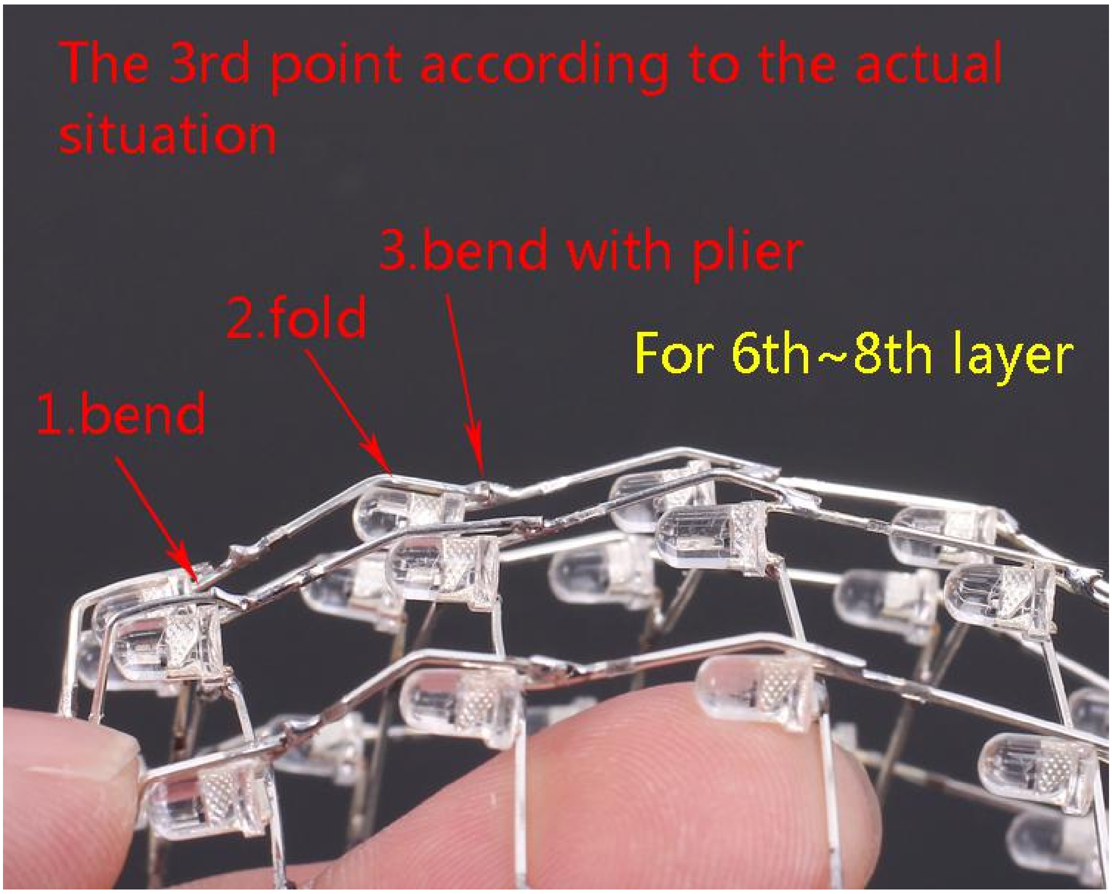




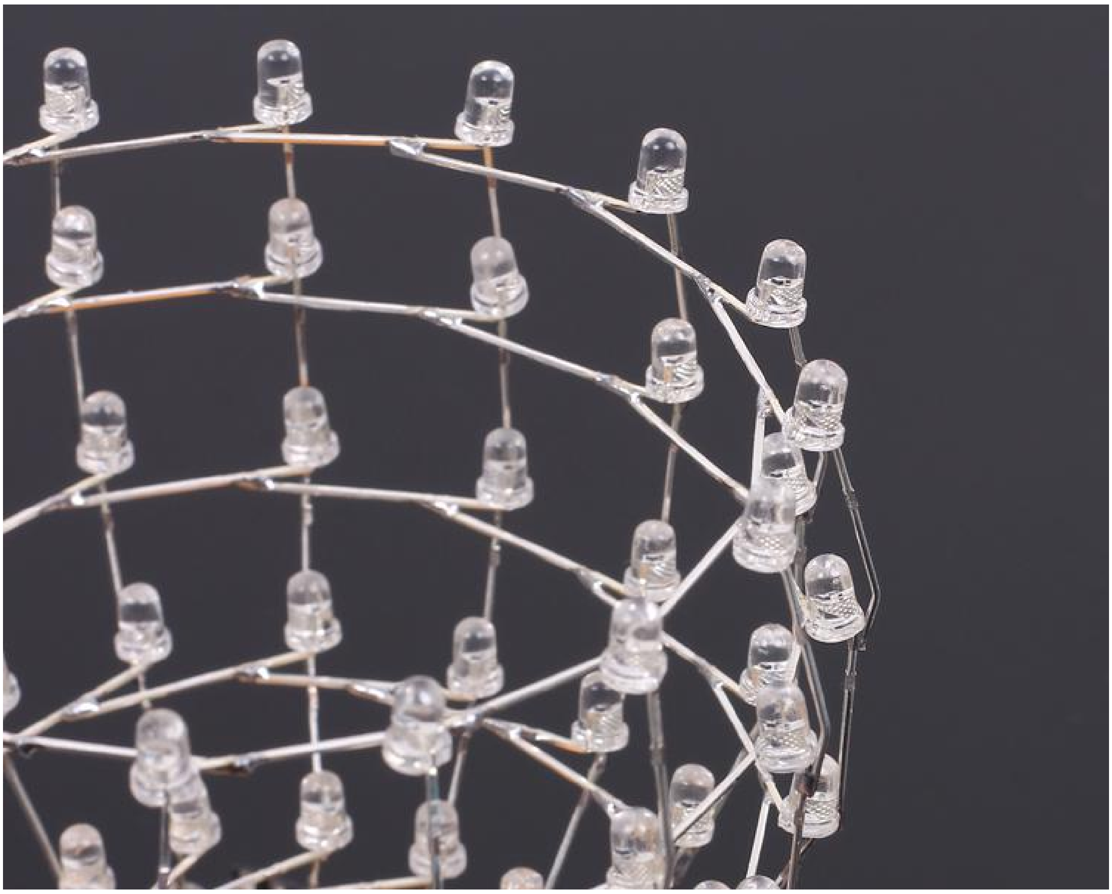


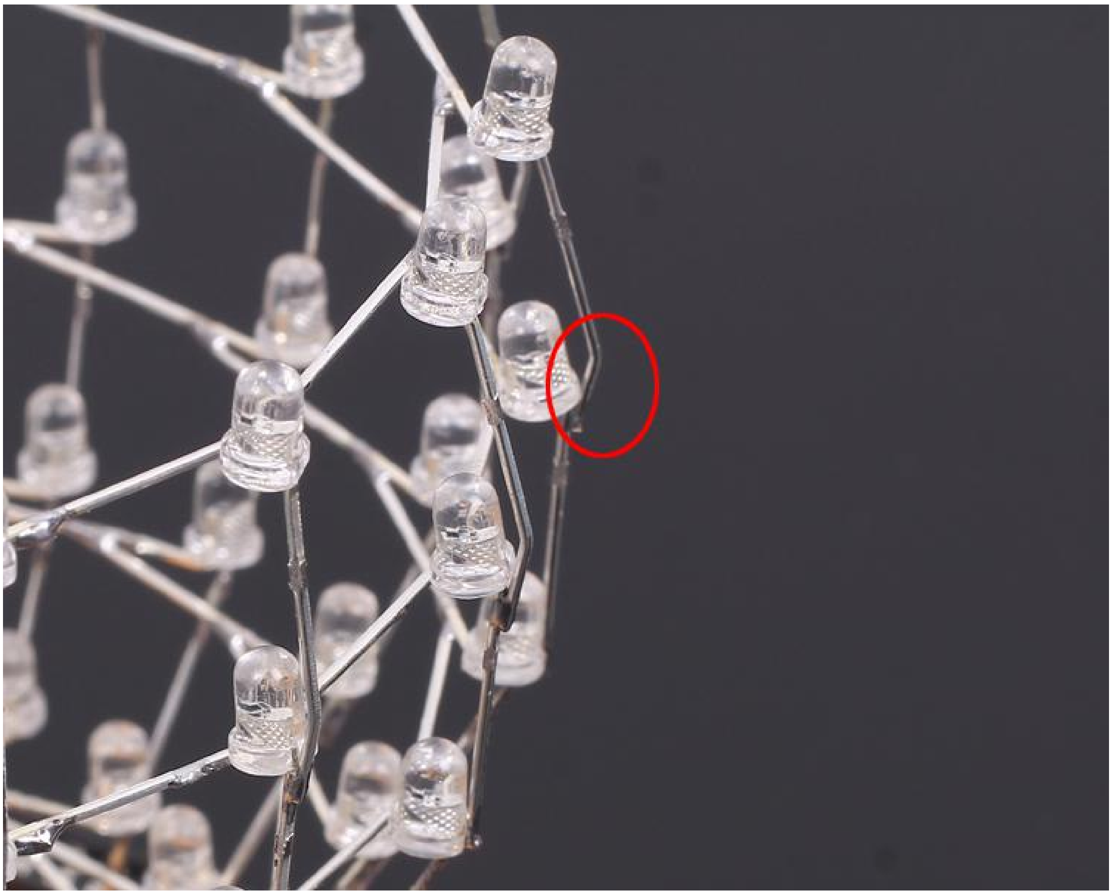
Step 14: Install 6th~8th layer,but bend the LED pins in different ways.

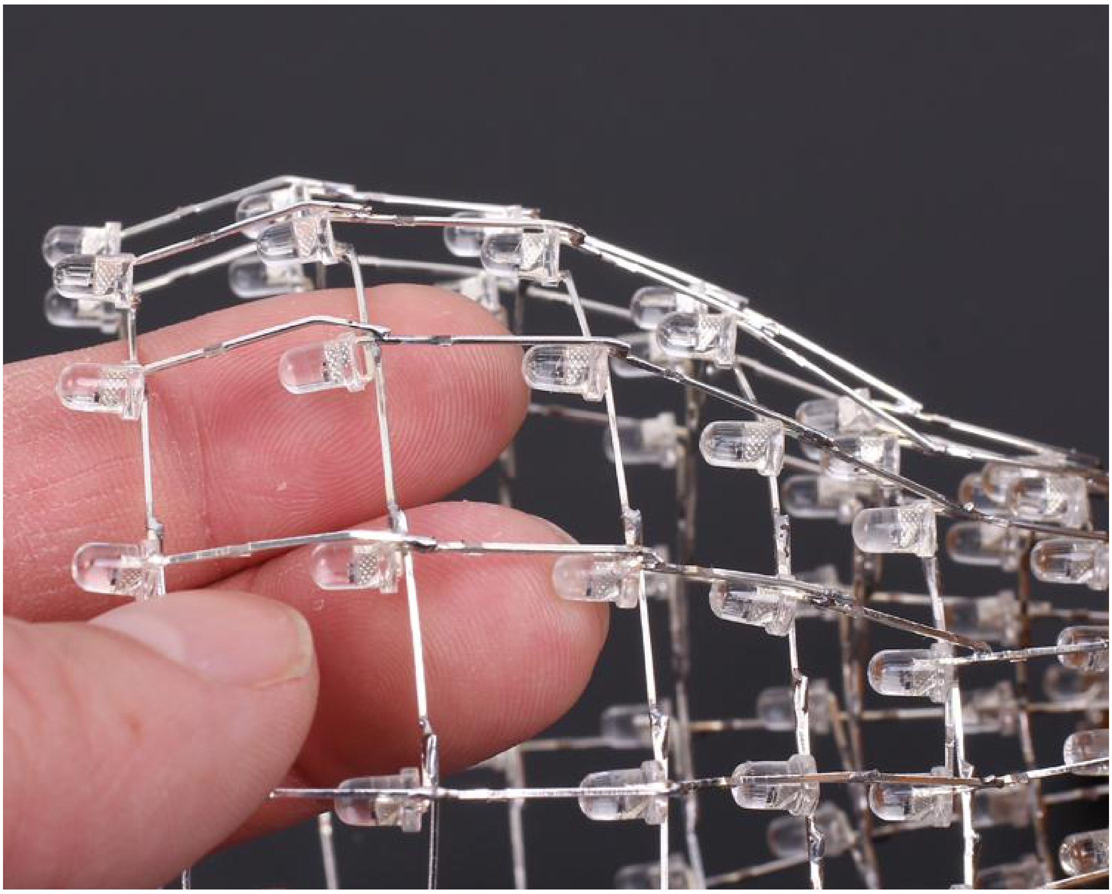

2nd~5th layer
6th~8th layer

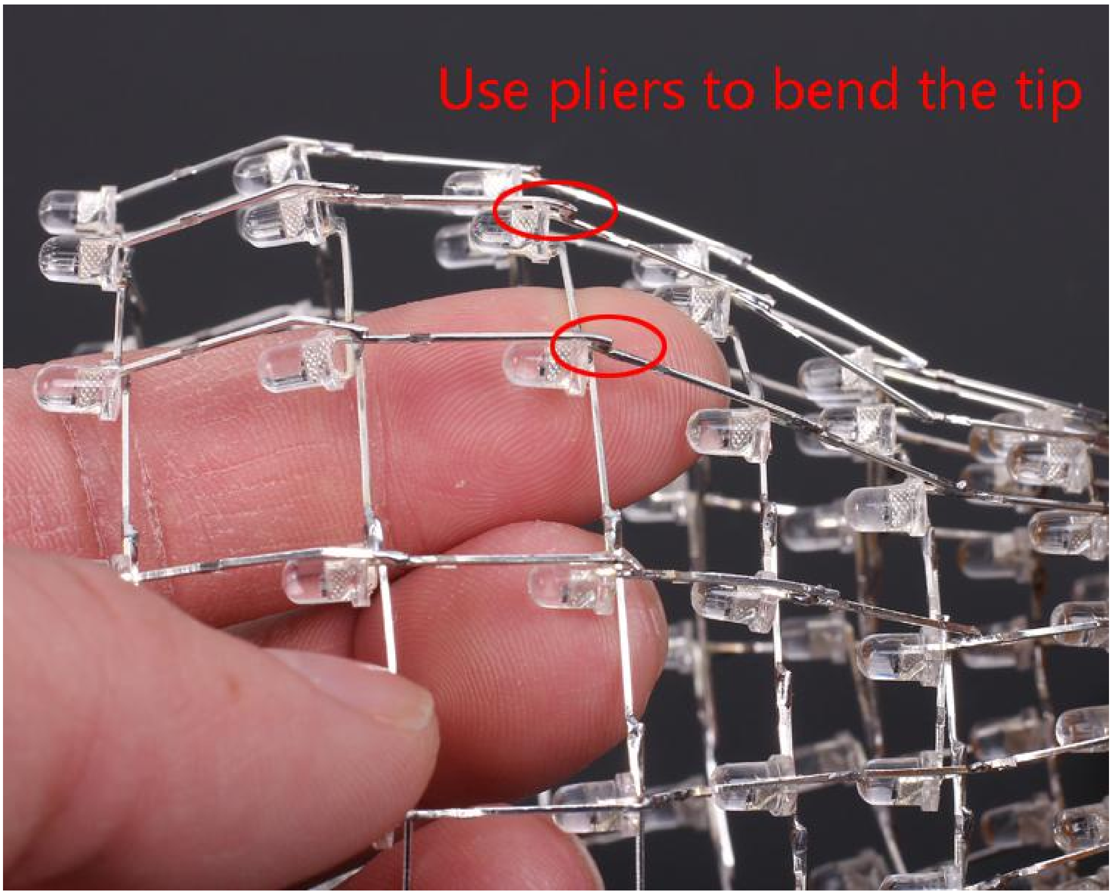

The 3rd point according to the actual situation
3.bend with plier
2.fold
1.bend
For 6th~8th layer



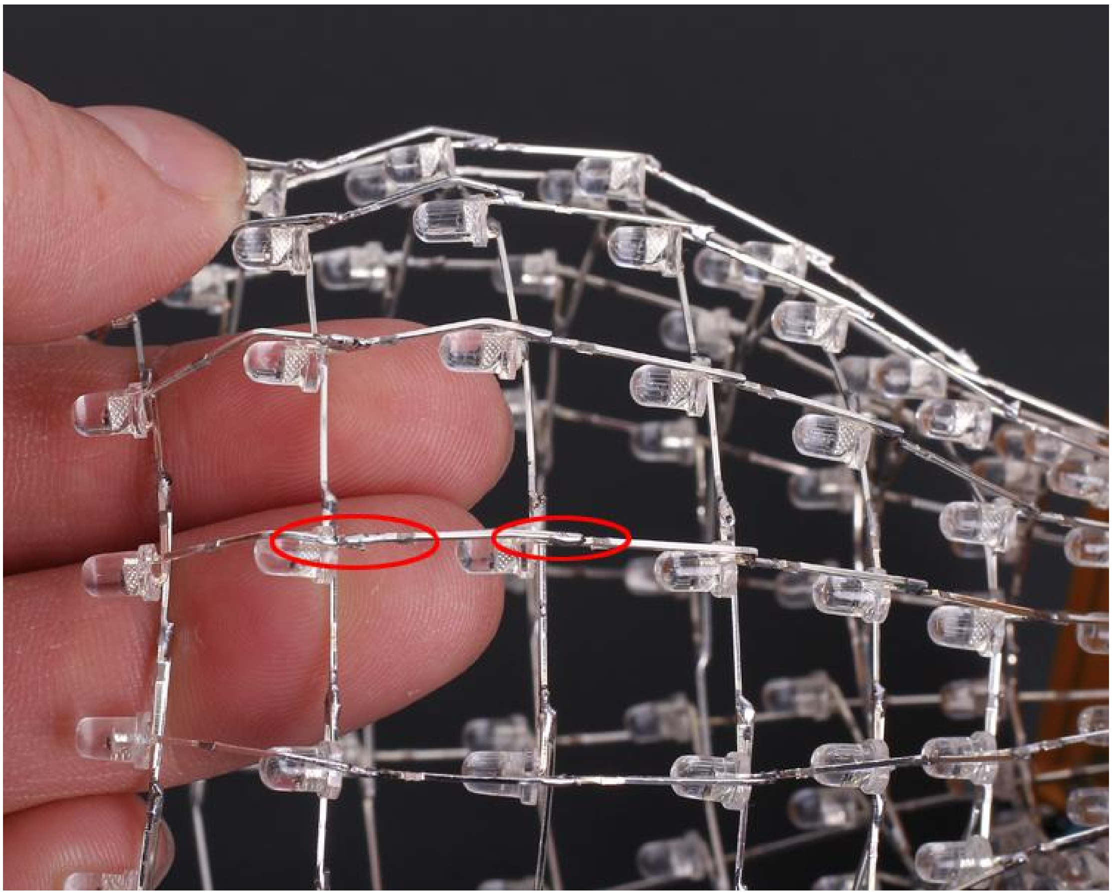


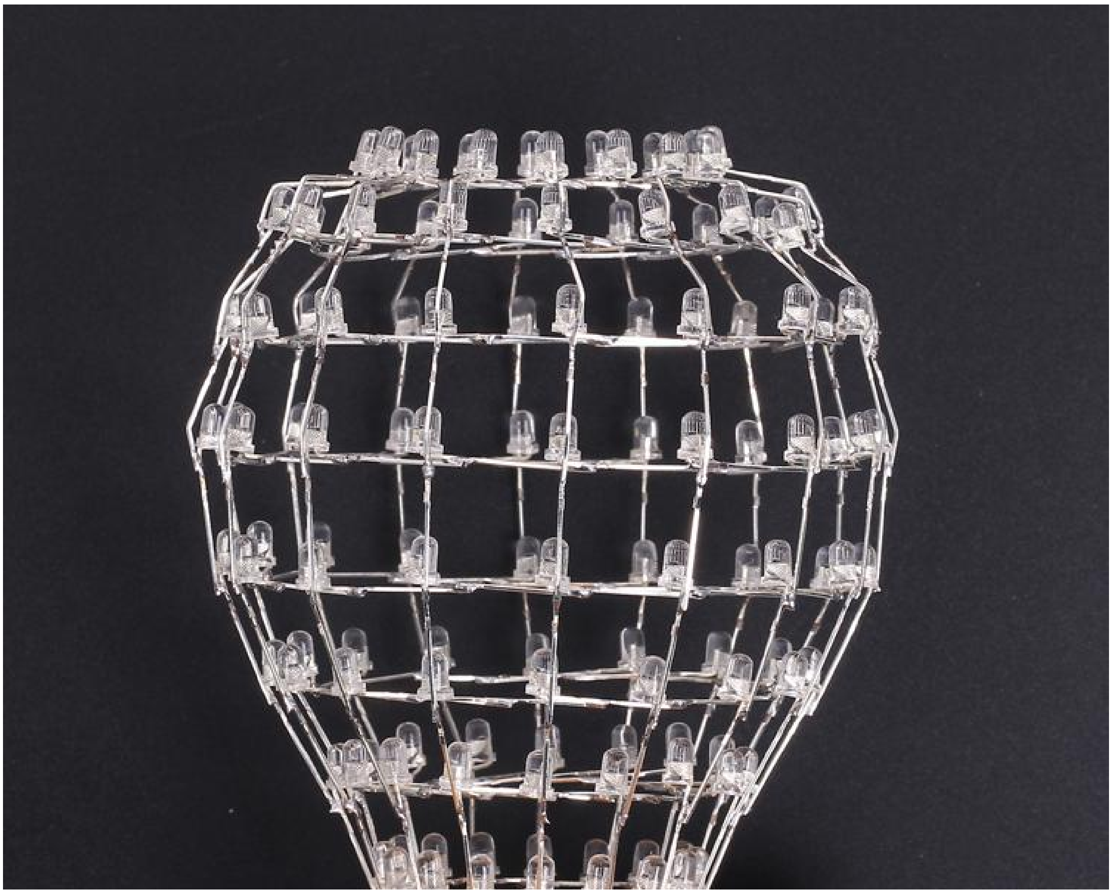


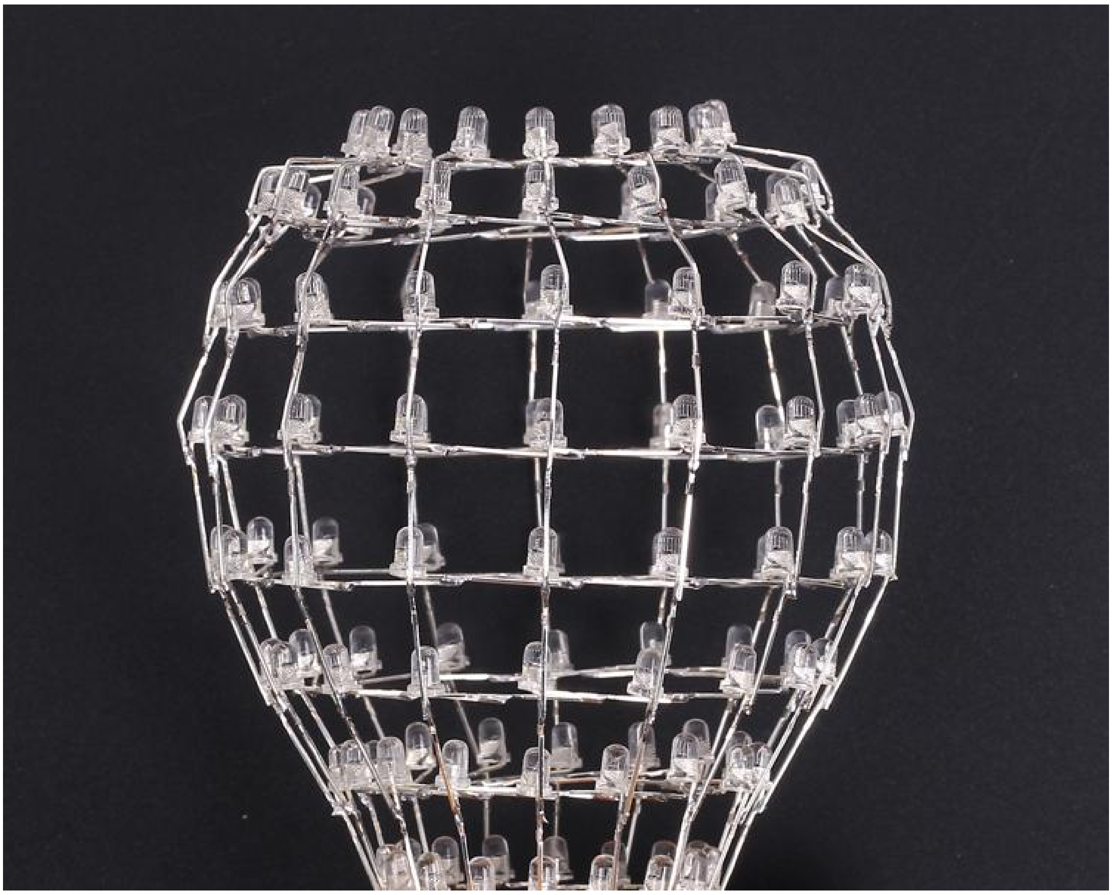



Use pliers to bend the tip

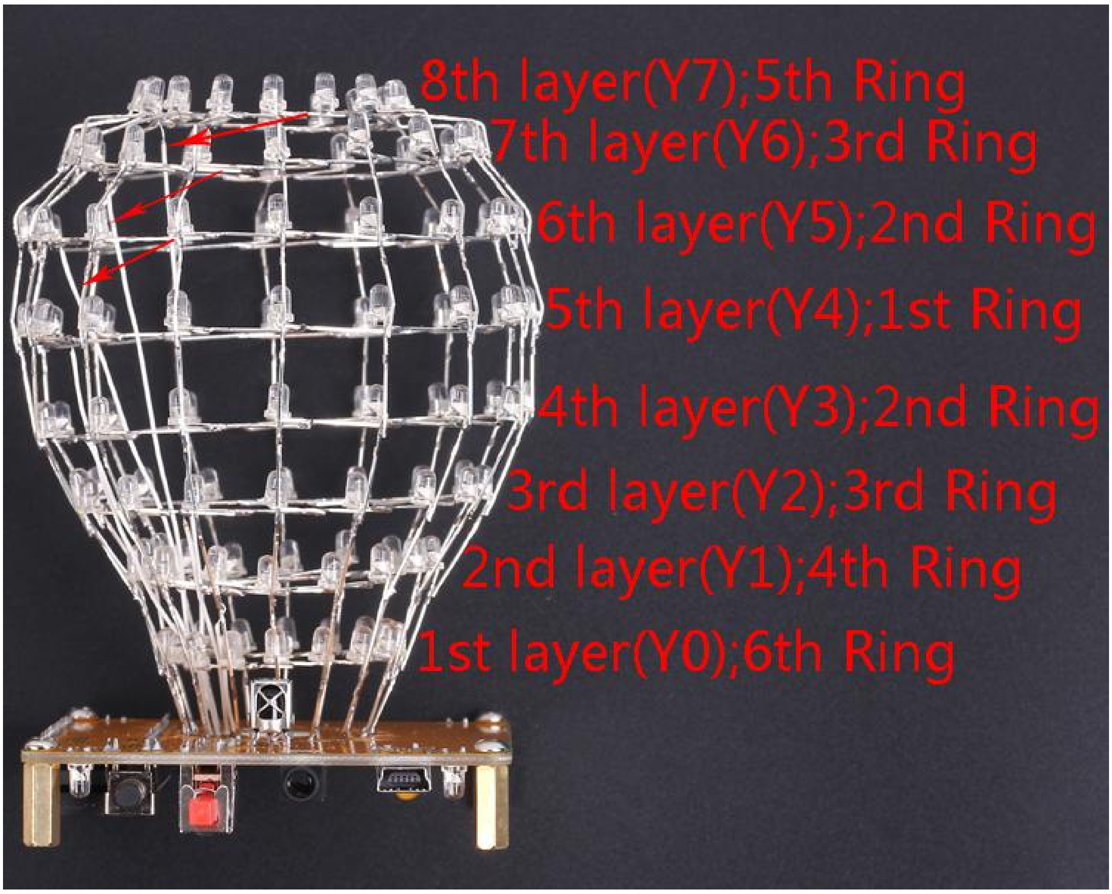




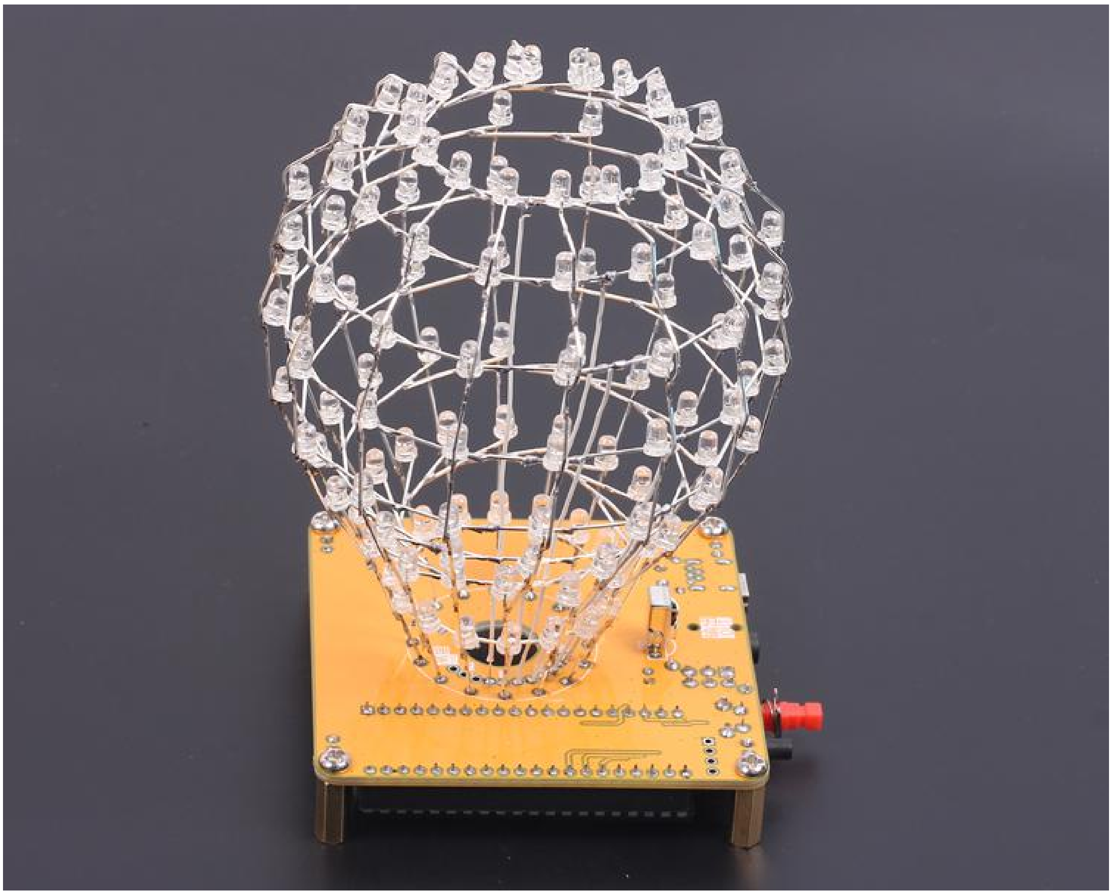


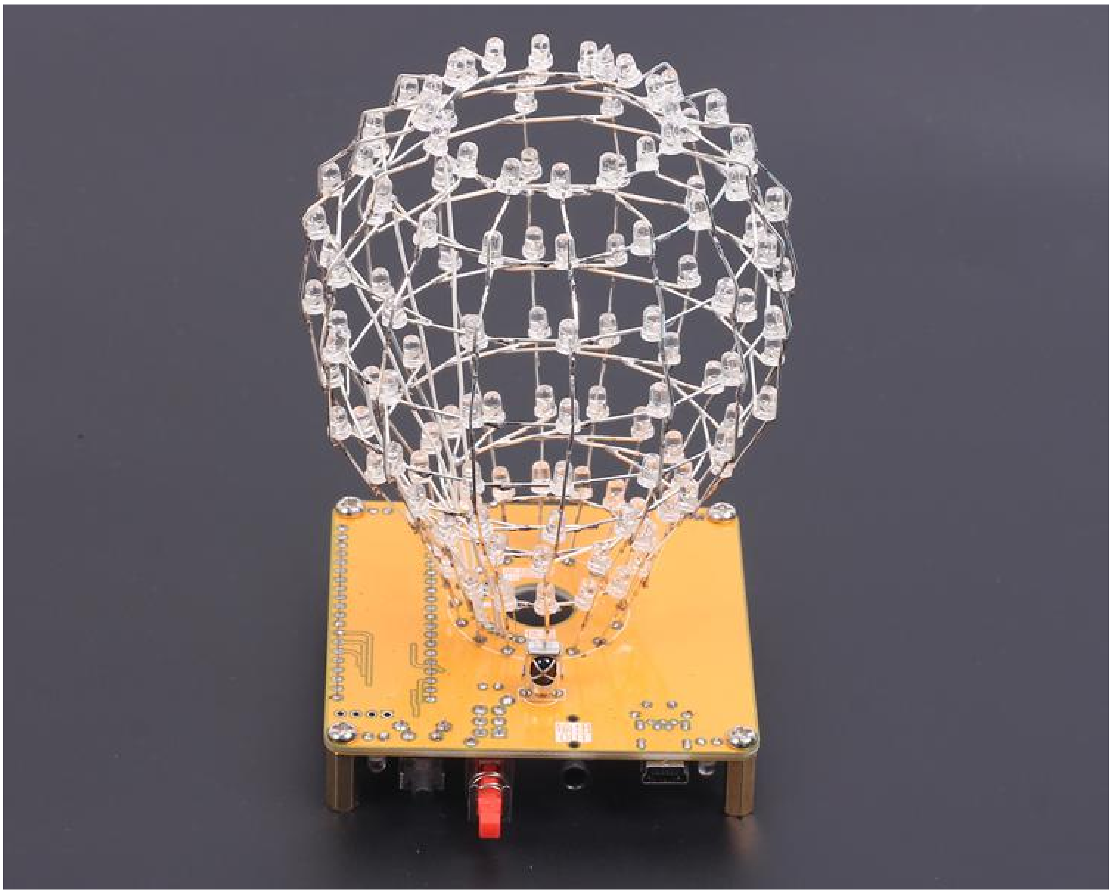


Step 15: Connect each to Y0~Y7 with white cable as picture.



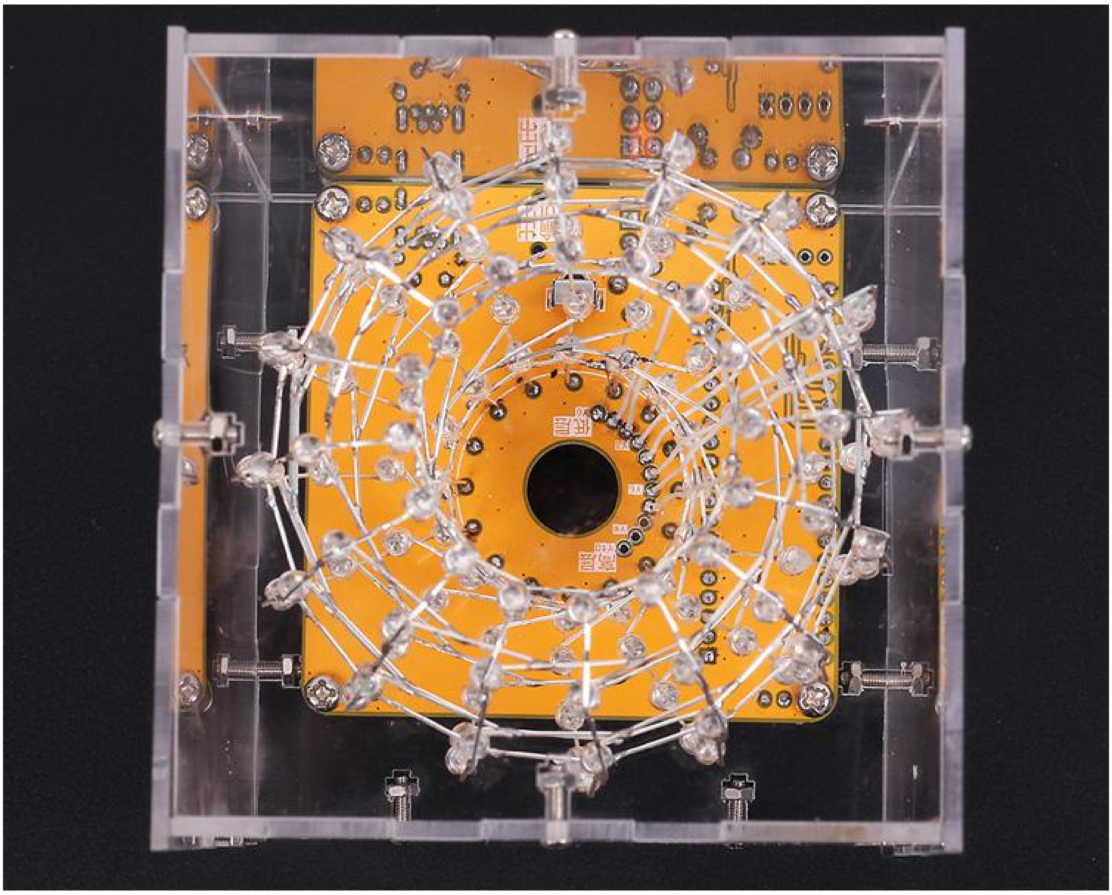
Step 15: Install IC and Test!





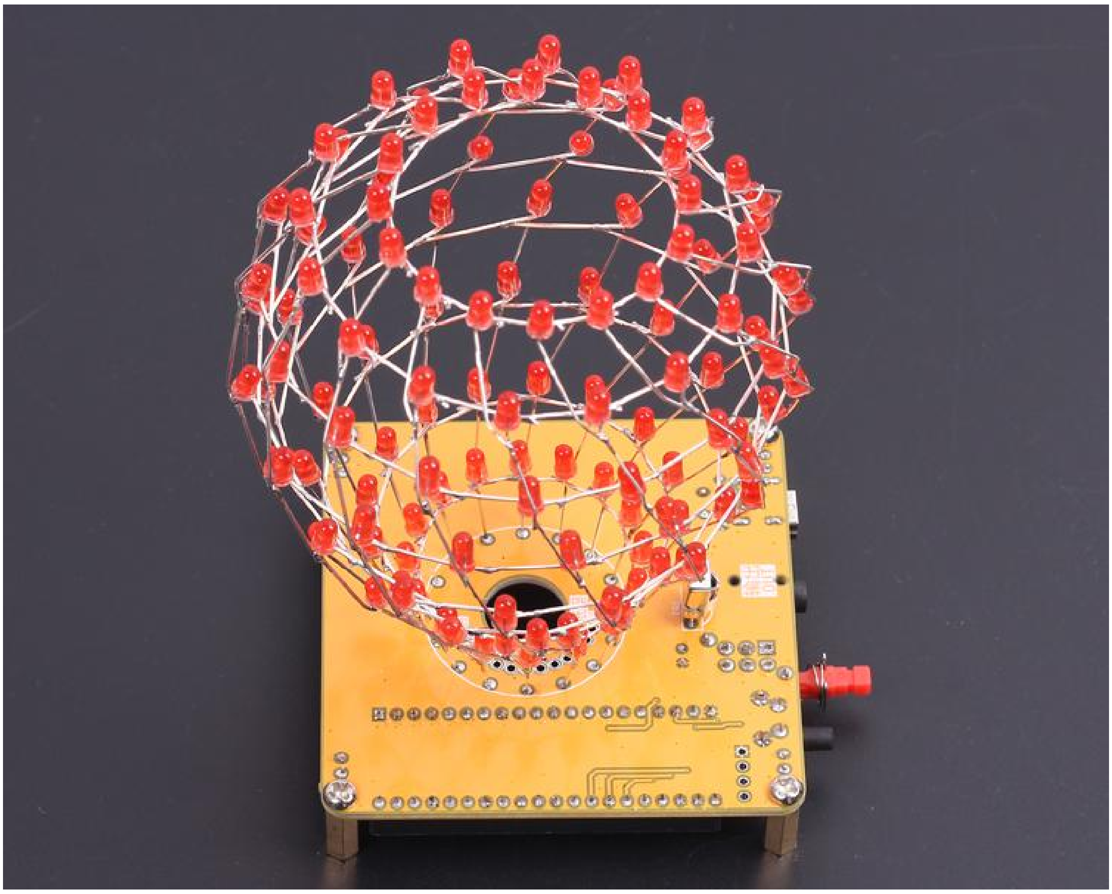
Step 16: Install Acrylic shell if the package is included inside.

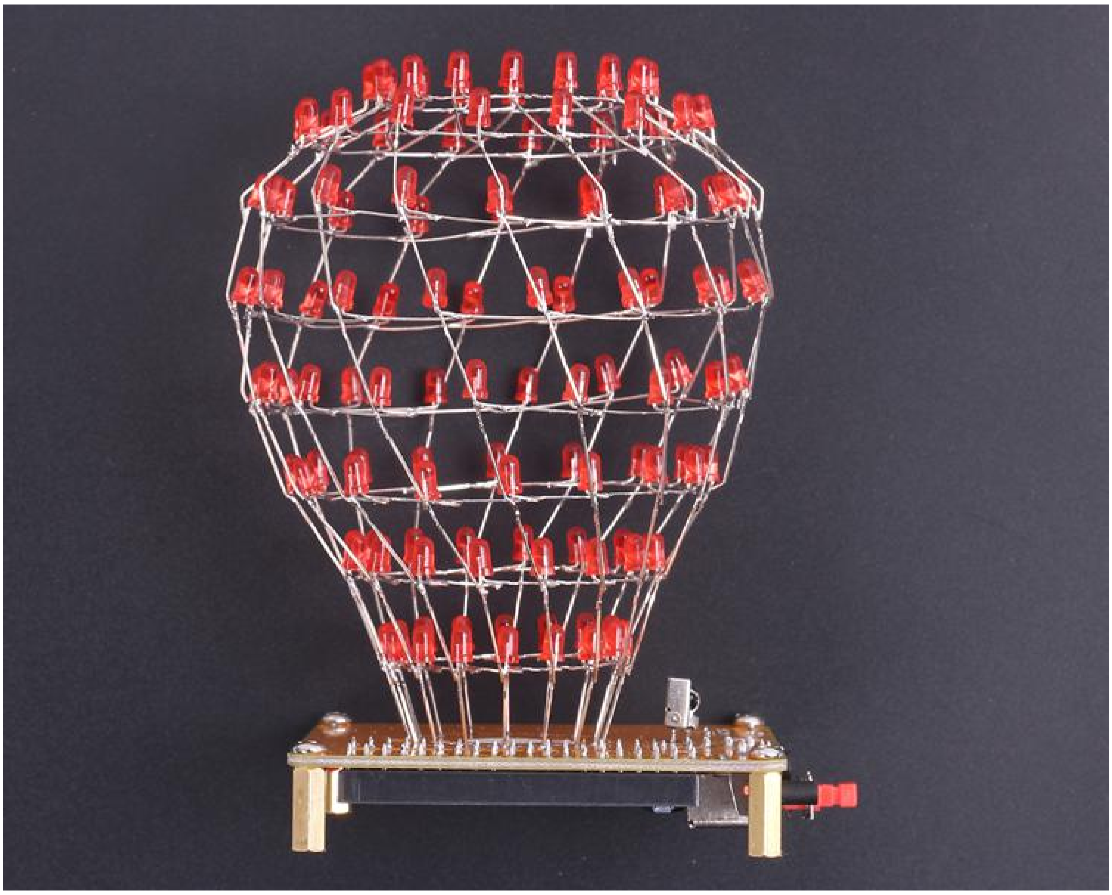


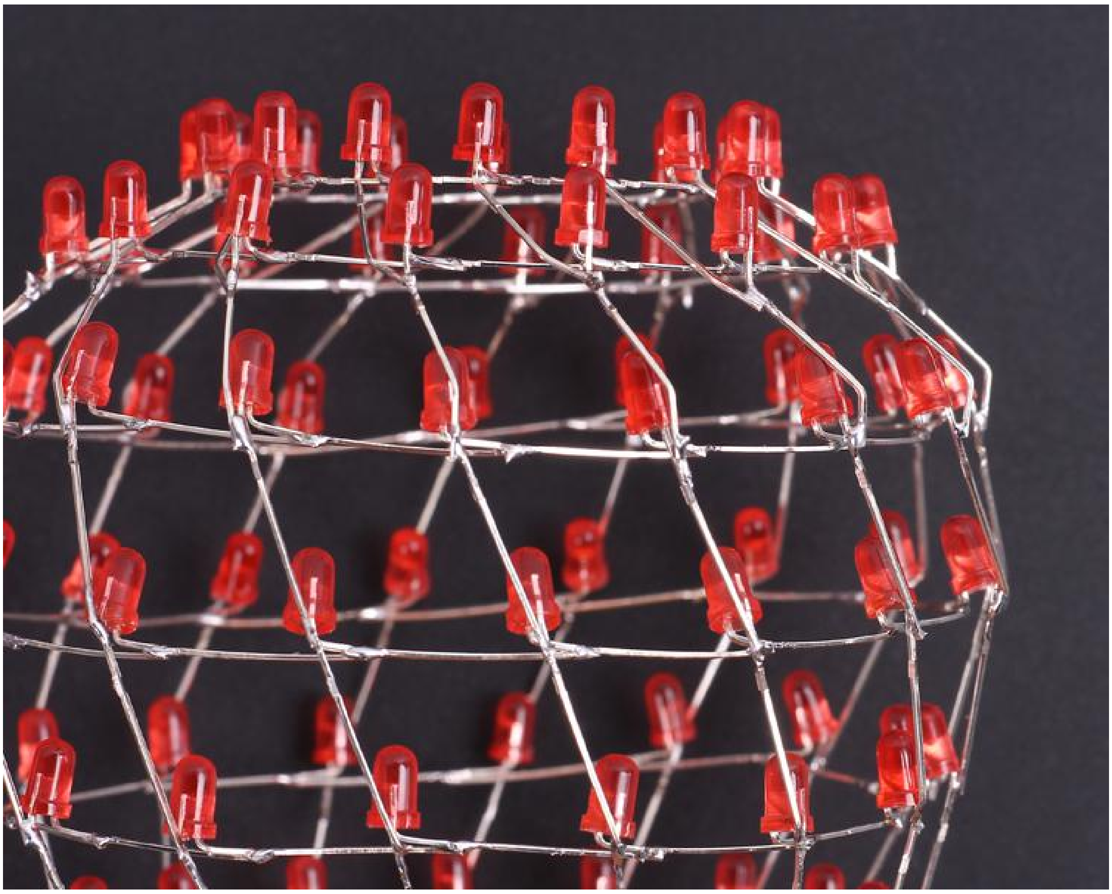


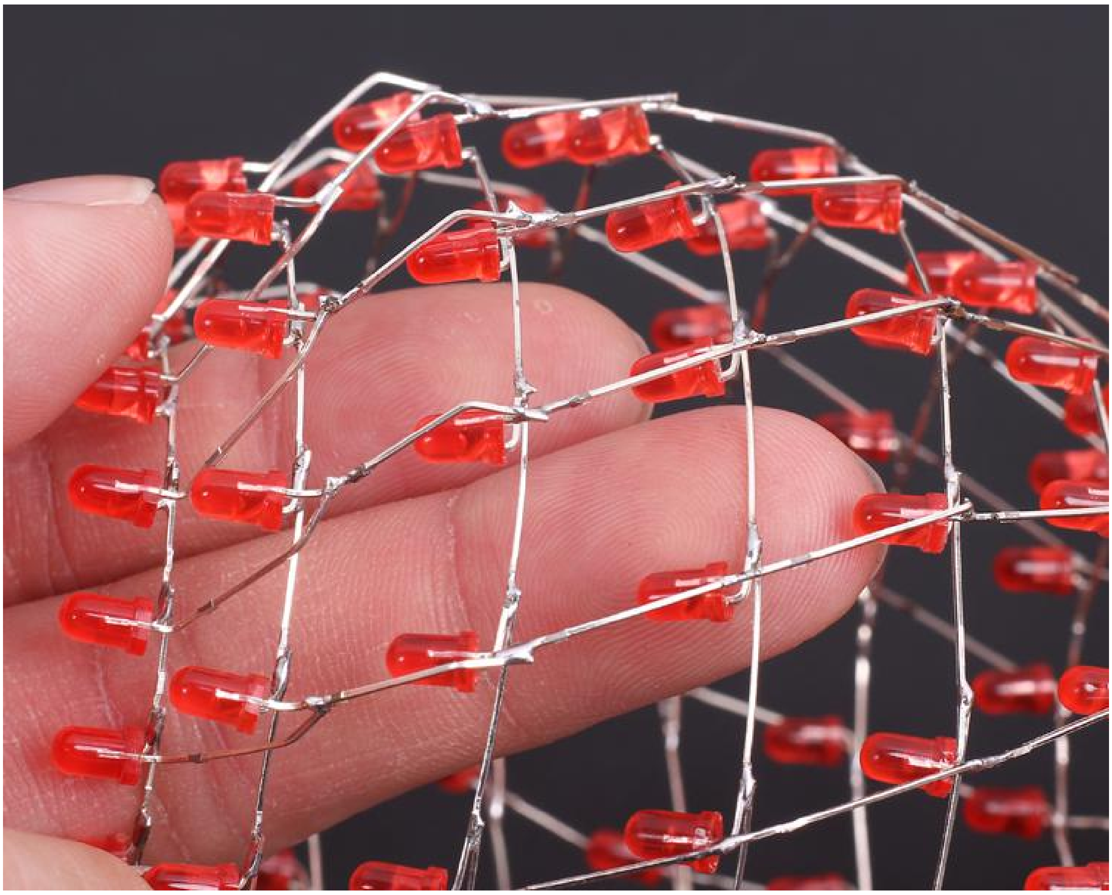


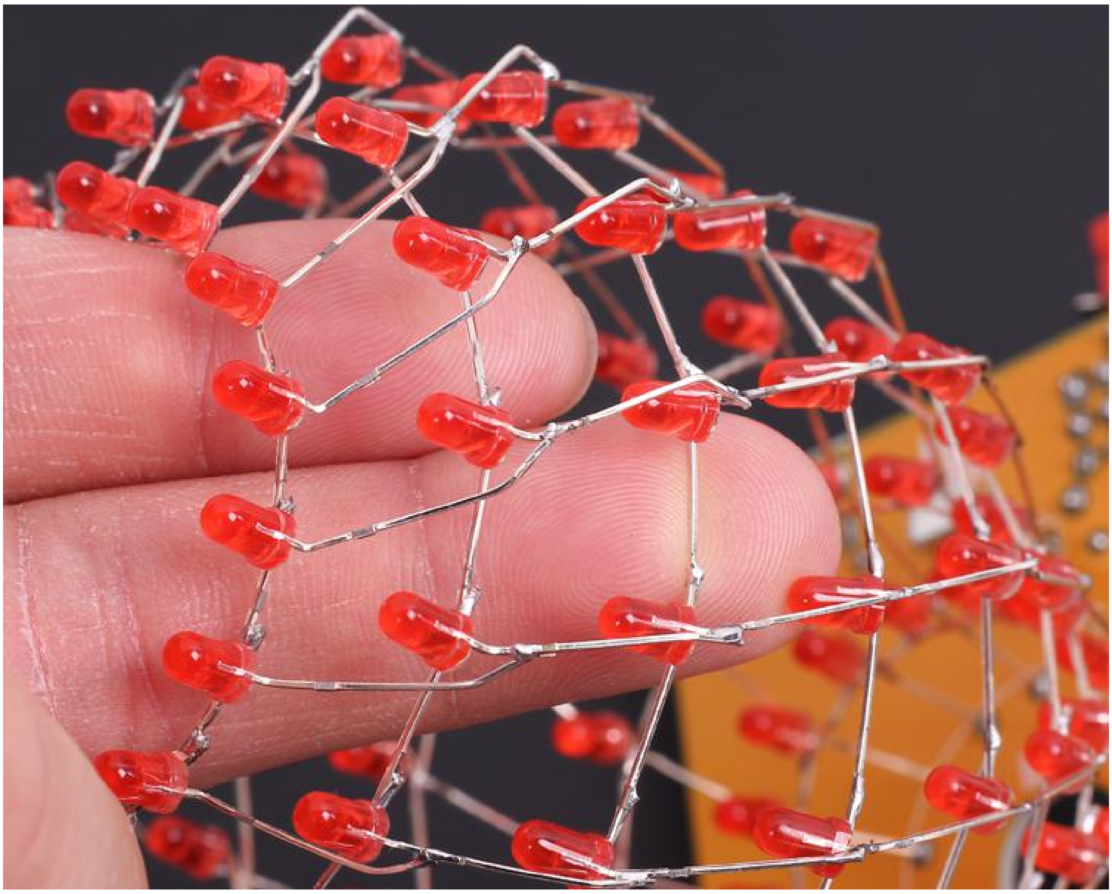
Installation method 2(Picture only):

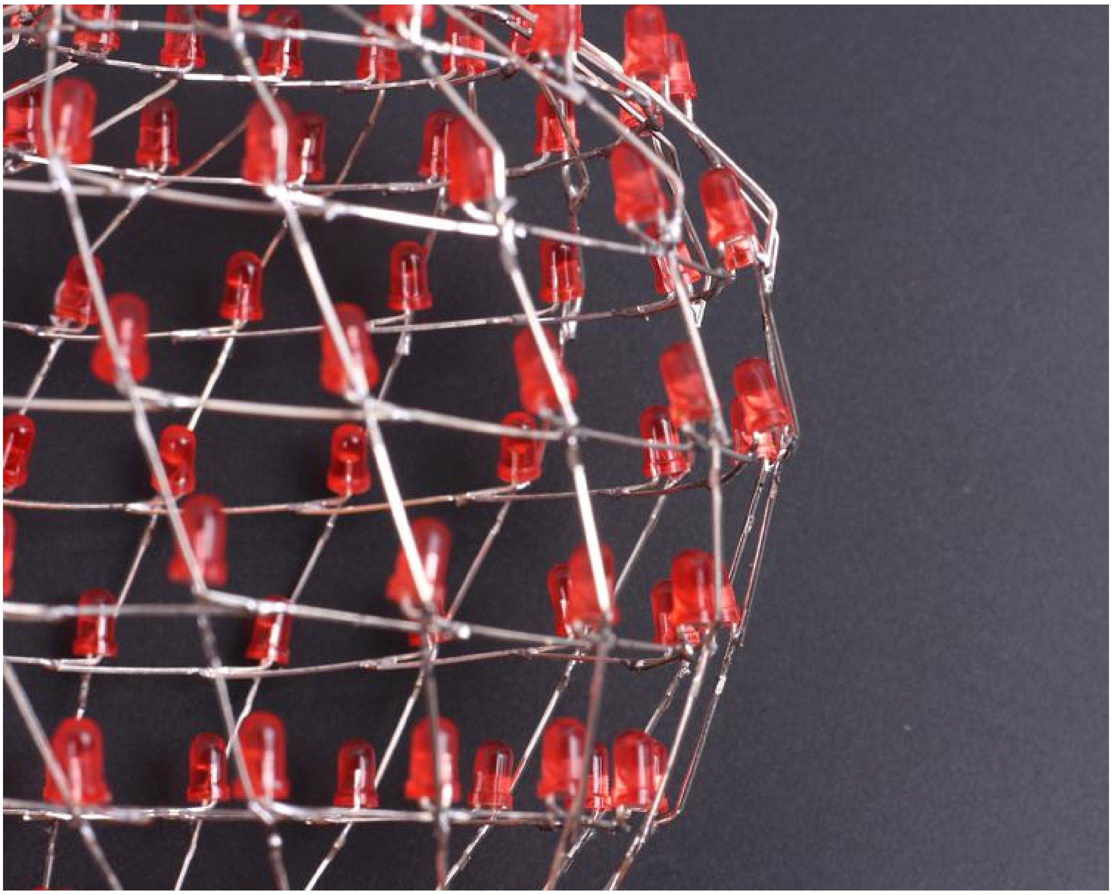


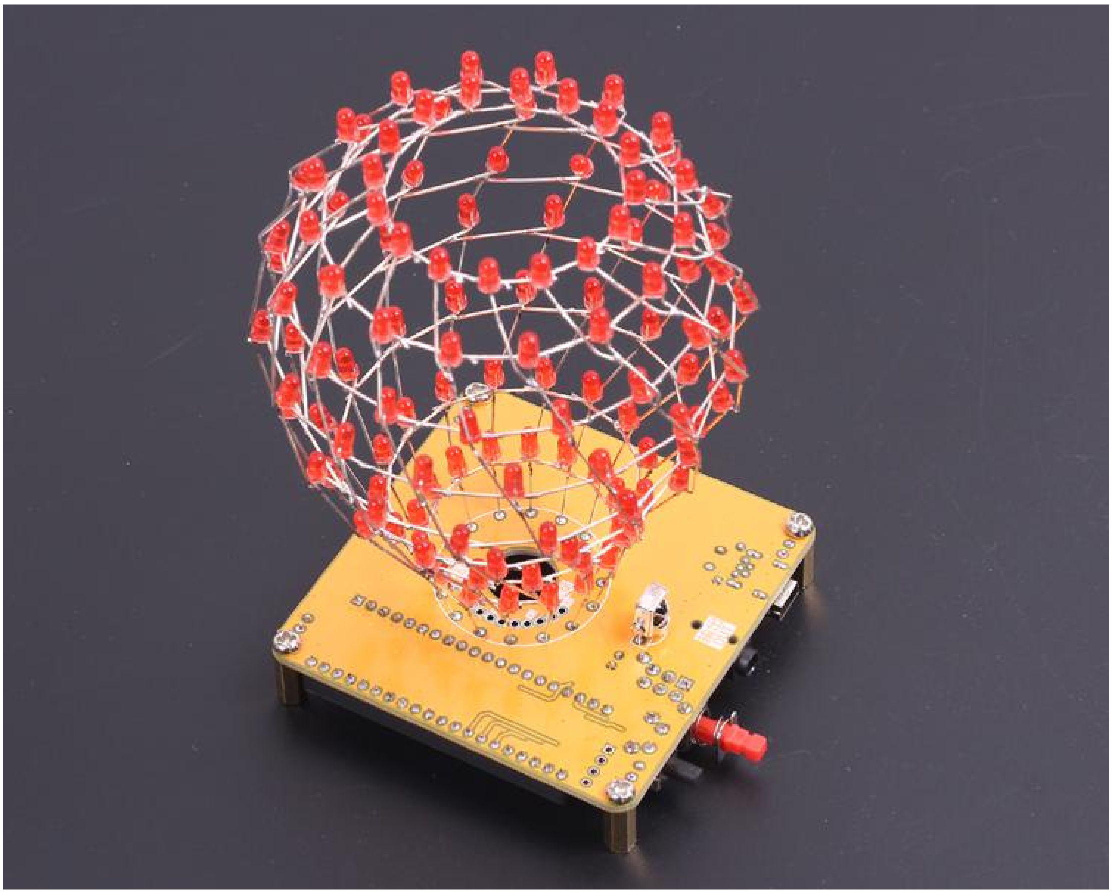


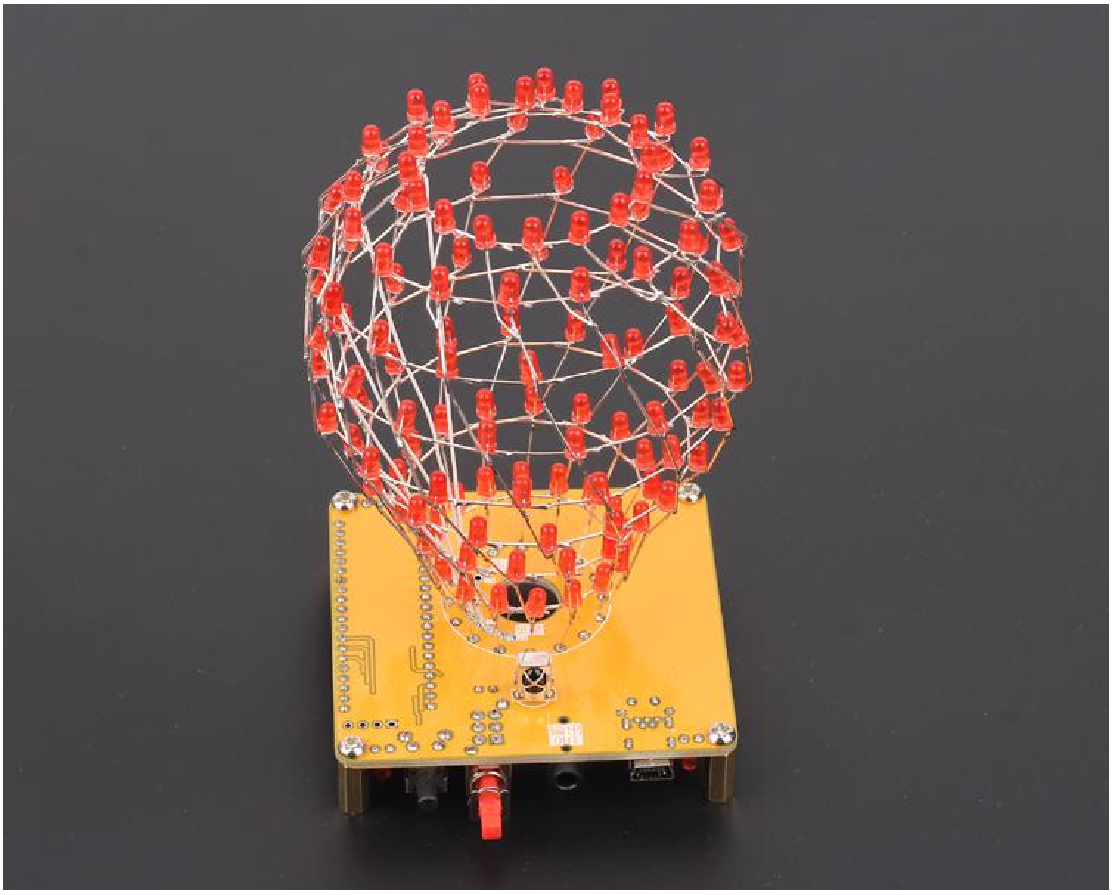


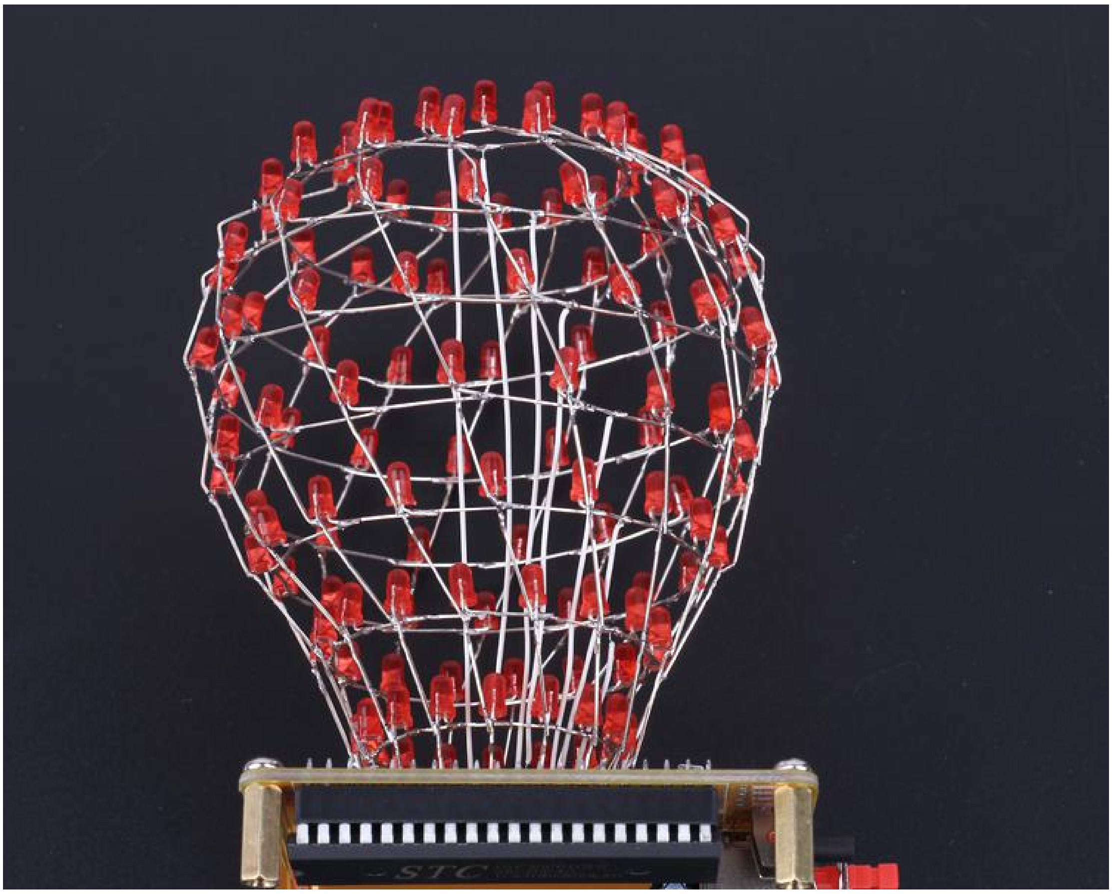


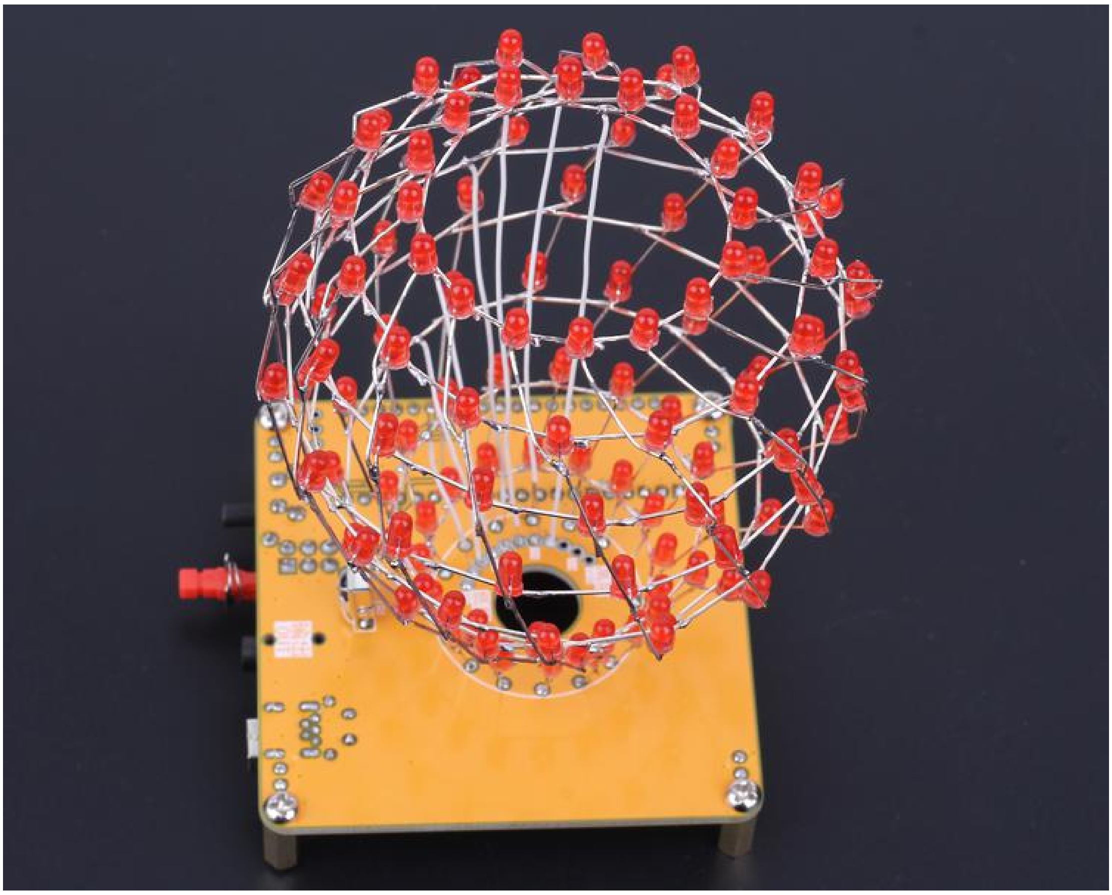


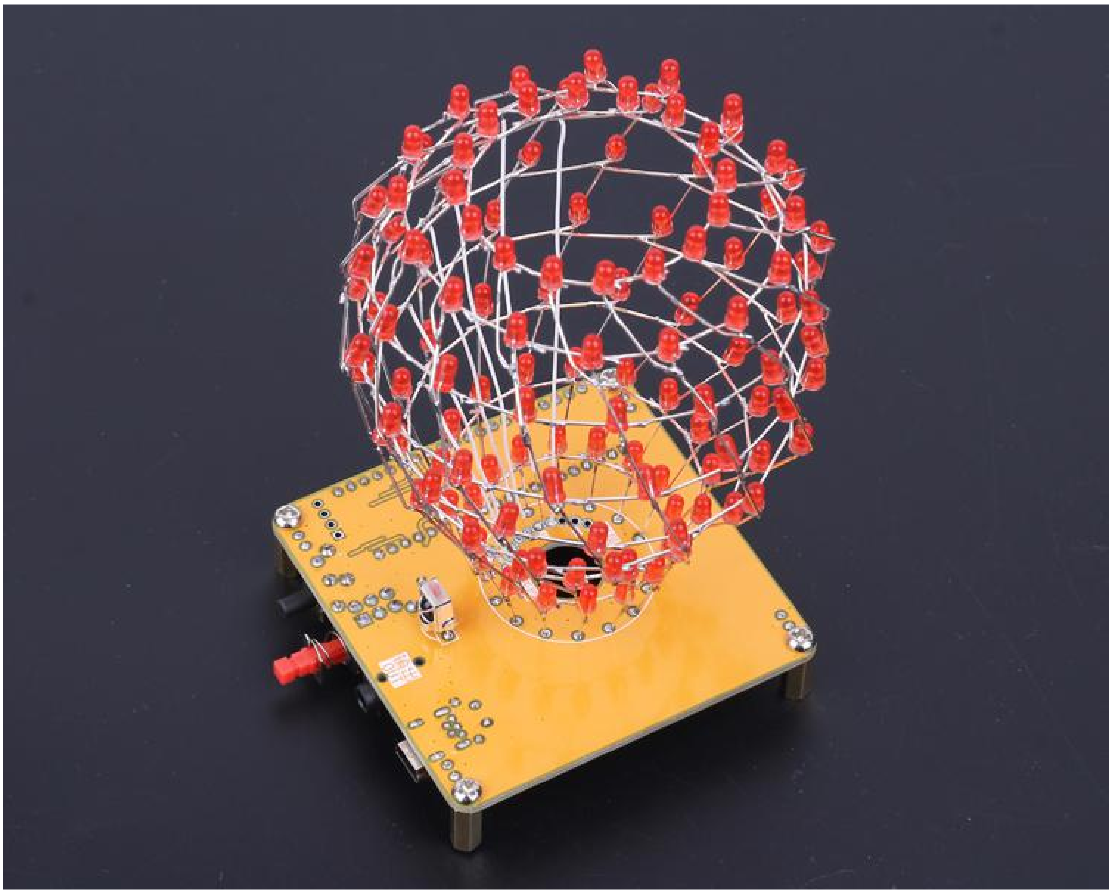












10. Effect demonstration(Only for appreciation)

